THE UNIVERSITY of ADELAIDE

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

By Email: iisr.reps@aph.gov.au

9 April 2021

Dear Committee Secretary

SUPPLEMENTARY SUBMISSION – INQUIRY INTO DEVELOPING AUSTRALIA'S SPACE INDUSTRY

We refer to our previous submission and the public hearing of 10 March 2021 of the Standing Committee on Industry, Innovation, Science and Resources' ("**Committee**") in Adelaide for the Inquiry into Developing Australia's Space Industry ("**Inquiry**").

Following a question on notice from the Chair of the Inquiry, we enclose a supplementary submission addressing the Chair's queries regarding how the Adelaide Law School would amend the current Australian law applicable to space activities and whether there is a need to consider the law of any other nation in this particular area.

We hope that the enclosed supplementary submission is of use to the Committee as part of their Inquiry.

Please feel free to contact us should the Committee have any further queries.

Sincerely

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Supplementary Submission – Inquiry into Developing Australia's Space Industry

1. Executive Summary

1.1 This supplementary submission ("**Submission**") has been prepared by the Adelaide Law School ("**we**", "**our**") in response to a question on notice during public hearings of the Standing Committee on Industry, Innovation, Science and Resources' ("**Committee**") in Adelaide for the Inquiry into Developing Australia's Space Industry ("**Inquiry**").

1.2 The Adelaide Law School was asked to prepare a submission setting out, with detail, changes that could be made to the Australian legal framework applicable to space activities that would improve that framework's operation and provide benefits to the Australian space industry.

1.3 As will be noted below, while we have set out a range of concerns regarding the *Space (Launches and Returns) Act 2018* (Cth) ("**Act**"), a substantial proportion of our comments relate to the rules promulgated under s 110 of the Act (referred to collectively as "**Rules**").

1.4 This Submissions covers a wide range of measures that could be implemented to benefit the Australian space industry. Our discussion and recommendations relate to:

1.4.1 ensuring responsibility for activities lies with the entity that is conducting the activity;

1.4.2 reducing regulatory ambiguities and/or lacunae;

1.4.3 adopting international practices where relevant and efficient to do so; and

1.4.4 reducing duplication of obligations and unnecessary burdens on regulated entities.

1.5 A summary of our recommendations can be found at Schedule 1 to this Submission.

2. Scope, Methodology and Limitations

2.1 This Submission addresses the question put to Professor Melissa de Zwart on notice by Hon Barnaby Joyce MP, Committee Chair, during a public hearing of the Inquiry on 10 March 2021.

2.2 The Chair asked the Adelaide Law School to consider and recommend:

2.2.1 changes to the *Space (Launches and Returns) Act 2018* (Cth); and

2.2.2 whether any foreign domestic laws (such as those in the United Kingdom ("**UK**") or New Zealand) should be used as a model for Australian law reform.

2.3 In the preparation of this Submission, the Adelaide Law School has had regard to:

2.3.1 materials submitted to and responses from the Federal Government associated with the 2015-2017 review of the *Space Activities Act 1998* (Cth) and associated framework;

2.3.2 materials submitted to and the report from the Senate Economics Legislation Committee's 2018 review of the *Space Activities Amendment (Launches and Returns) Bill 2018;*

2.3.3 materials submitted to and responses from the Australian Space Agency associated with the 2019 consultations on the Rules implemented under the *Space (Launches and Returns) Act 2018* (Cth);

2.3.4 written submissions to this Inquiry;

2.3.5 discussions with participants in the Australian space industry;[1] and

2.3.6 the reform process, consultations, submissions and laws developed in nations including New Zealand, the UK and the United States ("**US**").

2.4 In preparing this Submission we have not had regard to the imposition of fees on a cost recovery basis. We note that:

2.4.1 at the time of writing, the Australian Space Agency is consulting on the matter; and

2.4.2 industry is generally opposed to the imposition of fees on a cost recovery basis.[2]

2.5 In preparing this Submission, we have considered Australia's obligation to authorise and supervise the activities of non-governmental entities in outer space.[3] We recognise that our understanding of the international obligations of Australia may not align with that of the Australian Government (acting under advice) and this may impact how legislation has been prepared.

2.6 This Submission has been principally prepared by Professor Melissa de Zwart and Mr Joel Lisk. The Adelaide Law School would also like to thank Ms Rachel Neef and Ms Claudia Floreani for their assistance in preparing this Submission.

[1] The authors of this Submission wish to note that despite actively engaging with stakeholders in the launch sector, the Adelaide Law School has not been funded or otherwise supported in its preparation of this Submission by industry participants.

[2] Australian Space Agency, *Draft cost recovery implantation statement: Fees for activities under the Space (Launches and Returns) Act 2018 2021-2022* (Australian Government, 16 March 2021).

[3] *Treaty on Principles Governing the Activities of the States in the Exploration and use of Outer Space, including the Moon and Other Celestial Bodies,* opened for signature 27 January 1967, 610 UNTS 205, (entered into force 10 October 1967) ('*Outer Space Treaty*'); *Convention on International Liability for Damage Caused by Space Objects*, opened for signature 29 March 1972, 961 UNTS 187, (entered into force 1 September 1972) ('*Liability Convention*').

3. Space (Launches and Returns) Act 2018 (Cth)

This section 3 considers amendments to the Act. Sections 3.1 to 3.5 set out high level amendments that can be made to the Act to improve its operation. Section 3.6 sets out more specific recommendations and amendments that can be made to the Act.

3.1 Payload responsibility

Recommendation: Creation of a new Australian payload permit

3.1.1 At present, the Act includes a single permit for the launch of a 'space object' from Australia (including launch from an aircraft). A 'space object' includes the launch vehicle, integrated payload and the parts thereof.[4]

3.1.2 This licensing structure fails to account for the nature of the launch services industry. In a commercial market, launch operators contract with unrelated third parties to place payloads into specified orbits. The current structure of the Act does not account for the lack of control a launch operator may have over hosted payloads or their component parts.

3.1.3 This deficiency is reflected in the Rules. An applicant for an Australian launch permit is required to provide certain information to the relevant regulator along with undertakings regarding that payload's operation.[5] This arrangement appears to place the burden on the launch operator (not the payload owner) to ensure regulatory compliance of the payload during the operation of the relevant launch permit (for up to 30 days after launch). This is a significant obligation for a launch operator.

3.1.4 These concerns were raised and subsequently noted (but not acted upon) during the Senate Economics Legislation Committee's 2018 review of the Space Activities Amendment (Launches and Returns) Bill 2018.[6]

3.1.5 We recommend that the Australian Parliament introduce a new 'Australian payload permit'. This approach would align with that introduced in 2017 by New Zealand.[7]

3.1.6 Alternatively, the Australian Parliament may adopt the approach of the US. US law does not require a payload owner to have a specific licence, but instead they are required to comply with all applicable laws.[8] The Federal Aviation Administration ("**FAA**") is empowered to intervene where they are of the view that a payload owner is not acting in compliance with all applicable laws. The FAA has also developed a comprehensive 'payload review' process. A payload owner can seek a payload review by their own initiative or during a launch permit

[4] *Space (Launches and Returns) Act 2018* (Cth) s 8 (definition of 'space object').

[5] *Space (Launches and Returns) (General) Rules 2019* (Cth) s 50.

[6] Senate Economics Legislation Committee, "Space Activities Amendment (Launches and Returns) Bill 2018 [Provisions]" *Commonwealth of Australia* (August 2018) 16 [2.33]; Gilmour Space Technologies, Submission No 1 Economics Legislation Committee, *Space Activities Amendment (Launches and Returns) Bill 2018 [Provisions]* (2 July 2018).

[7] *Outer Space and High-altitude Activities Act 2017* (NZ) pt 2 sub-pt 2.

[8] *Commercial Space Launch Activities* 51 USC §§50904(b)-(c) (2018)

application process.[9] Compared to the Act, this process more accurately recognises the separate nature of a payload.

3.1.7 We recommend the approach detailed at paragraph 3.1.5, as it is the most comprehensive and complete approach to payload regulation at the 'launch' stage. This will remove responsibility for a payload from the launch operator entirely and reduce the regulatory burden on launch operators. The implementation of an Australian payload permit will require consequential amendments to liability and financial compensation provisions of the Act.

3.2 On-orbit regulation

Recommendation: Creation of a new Part, Division or legislative instrument regulating orbital activities

3.2.1 As the name of the Act suggests, only launch and return activities are regulated by the Act in Australia. The offence provisions found in Division 1 of Part 3 of the Act only refer to launches, returns or the operation of a launch facility, not to the operation of a payload in orbit.

3.2.2 Aspects of the Act operate during the 'liability period'. The liability period is:

a. the period commencing at launch and ending 30 days after that launch; and

b. the period beginning when a re-entry manoeuvre commences, and ending when the space object comes to rest on the Earth.[10]

3.2.3 The liability period is relevant for the imposition of liability for damage, ascertaining the responsible entity for the launch or return activity, and suspension of a licence following an incident.

3.2.4 In many respects, this approach reflects that found in the US under Title 51, Chapter 509 of the US Code (the laws applicable to launch).[11] The US's approach to regulating payloads/satellites is widely different to that of Australia. In the US, earth observation capabilities on a satellite are regulated by the National Oceanic and Atmospheric Administration ("**NOAA**")[12] and communications capabilities are regulated by the Federal Communications Commission ("**FCC**").[13] NOAA and the FCC impose a substantial range of obligations regarding on-orbit operation of satellites. There are no equivalent laws in Australia.

3.2.5 Several nations regulate the activities of a satellite more generally. These nations include (but are not limited to) the United Kingdom,[14] Japan,[15] Belgium,[16] Denmark,[17] Finland,[18] Luxembourg,[19] and the

[9] See, *Launch and Reentry License Requirements* 14 CFR §450.43 (2020).

[10] *Space (Launches and Returns) Act 2018* (Cth) s 8 (definition of 'liability period').

[11] *Commercial Space Launch Activities* 51 USC Ch 509 (2018)

[12] *Licensing of Private Remote Sensing Space Systems* 51 USC ch 601 sub-ch III (2015)

[13] See generally, *Communications Satellite System* 47 USC ch 6 (2018)

[14] *Space Industry Act 2018* (UK) ss 1(4)(b)-(c); *Outer Space Act 1986* (UK) s 1(b)-(c).

[15] *Act on Launching of Spacecraft, etc. and Control of Spacecraft (Act No. 76 of 2016)* (Japan) Ch 3.

United Arab Emirates.[20] Many of these legal regimes have been implemented within the last 10 years, recognising that there is a need to authorise and supervise the operation of a satellite in orbit in modern space-focused laws.

3.2.6 We recommend that the Australian Parliament consider the introduction of a satellite operator licence or equivalent on-orbit licensing regime. This may be implemented as part of the recommendation set out at section 3.1 above (by extending the payload permit's scope from launch, through deployment by a launch vehicle, to end of life and disposal). This law does not need to be comprehensive but should provide clarity on how Australia regulates the activities of its nationals in orbit.

3.2.7 The implementation of any 'on-orbit' regulation or authorisation will require consequential amendments to liability and financial compensation provisions of the Act.

3.3 International permits

Recommendation: Introduce a provision to recognise licences granted by foreign jurisdictions.

3.3.1 There is a growing body of foreign domestic law applicable to private space activities. The globalisation of the space industry will inevitably cause companies incorporated in one jurisdiction to contract with entities in others, leading to a global marketplace for the space industry.

3.3.2 While there are secondary factors that make certain jurisdictions attractive for establishing launch facilities and operations, location remains an important factor. Australia is uniquely placed to provide access to a wide range of orbits.

3.3.3 Most (if not all) domestic legal frameworks require nationals (individuals and companies) to acquire licences in both their home country (i.e. for a company, its country of incorporation) and the jurisdiction in which the launch is taking place.[21] This dual authorisation arises as a consequence of the *Outer Space Treaty* and *Liability Convention.*

3.3.4 Recognition of foreign licences will relieve regulatory burdens for overseas companies looking to Australia for launch services.[22] While there will always a degree of risk in recognising approvals granted overseas, the Australian Parliament should consider the

[16] *Law of 17 September 2005 on the Activities of Launching, Flight Operation or Guidance of Space Objects* (Belgium) Art 2§1.

[17] *Outer Space Act (Act No. 409 of 11 May 2016)* (Denmark) ss 2, 4(1).

[18] *Act on Space Activities (No. 63 of 2018)* (Finland) ss 1, 4(1), 5.

[19] *Law of 15 December 2020 on space activities* (Luxembourg) arts 1, 2(1).

[20] *Federal Law No 12 of 2019 on the Regulation of the Space Sector* (United Arab Emirates) art 4(1).

[21] See e.g. *Outer Space Act* (UK) s 1; *Outer Space and High-altitude Activities Act 2017* (NZ) ss 7, 15, 23, 31.

[22] Virgin Orbit, Submission No 33 to Standing Committee on Industry, Innovation, Science and Resources, *Developing Australia's Space Industry* (29 January 2021) 14.

implementation of a provision into the Act that recognises foreign permits and licences.

3.3.5 An existing example of such a provision can be found at s 51 of New Zealand's *Outer Space and High-altitude Activities Act 2017*. This provision has been reproduced below (omitting cross references to other sections of that law):

> **51 Minister may take into account authorisation granted in country other than New Zealand**
>
> (1) The Minister may treat a licence, permit, or other authorisation that concerns a matter relevant to the Minister's decision and that was granted, or is likely to be granted, to an applicant or other person in a country other than New Zealand as satisfying some or all of the criteria for granting a launch licence […], a payload permit […], an overseas launch licence […], an overseas payload permit […], or a facility licence […].
>
> (2) A licence or permit granted in reliance in whole or in part on subsection (1) may come into force only after the overseas licence, permit, or other authorisation is granted.

This power is discretionary and allows the relevant regulator to determine whether it accepts a foreign jurisdiction's licences.

3.3.6 The Rules introduced a similar concept at ss 4, 19(2) and 48(2) although it appears underdeveloped.[23] The Minister's ability to create a 'technical recognition instrument' is not considered in any detail (i.e. there does not appear to be any basis in the Act or Rules on *how* a technical recognition instrument is created), and it only relates to design and engineering plans for launch facility licences and information about a launch vehicle.

3.3.7 A version of the New Zealand provision, codified in the Act, has the potential to substantially reduce regulatory burdens imposed as a consequence of international obligations. We recommend the Australian Parliament introduce a provision similar to s 51 of the *Outer Space and High-altitude Activities Act 2017* (NZ) into the Act.

3.4 Air launch

3.4.1 The 2018 amendments to the Act expressly recognised the ability to launch a rocket from an aircraft in flight.[24] In-flight launch is a technology principally associated with Virgin Galactic and Virgin Orbit, but has also been used by Northrop Grumman's Pegasus launch vehicle.

3.4.2 This type of launch is distinct from a single space-capable vehicle that can take-off and land on a runway and vehicles which are placed into space as a payload on a rocket but land on a runway like an aircraft.

[23] *Space (Launches and Returns) (General) Rules 2019* (Cth) ss 4, 19(2), 48(2).

[24] See *Space Activities Amendment (Launches and Returns) Act 2018* (Cth); Explanatory Memorandum, Space Activities Amendment (Launches and Returns) Bill 2018 (Cth).

3.4.3 Unlike legal regimes in the US and UK, the Act is unclear as to whether launch from an aircraft within Australian airspace only requires an Australian launch licence or whether a launch facility permit is also required.[25] In the US, Virgin Galactic's White Knight Two (the aircraft that deploys Space Ship Two) is considered part of the launch vehicle.[26] For the purpose of the US law, 'launch' commences when 'hazardous pre-flight operations commence … that may pose a threat to the public'.[27] When considering aircraft capable of launching a space object under US law, the 'launch' of the space object commenced prior to the aircraft even beginning take-off on a runway.

3.4.4 In Australia, the classification of aircrafts capable of launching space objects is ambiguous. In certain circumstances, the definition of 'space object' can be interpreted to cover an aircraft that deploys a rocket (making the aircraft a part of a space object that only goes some of the way towards an area beyond 100 km above mean sea level). Contrastingly, the specific mention of the launch of a space object from an aircraft undermines this interpretation.

3.4.5 This interpretive point plays a key role. If the aircraft is a space object, then launch would occur from take-off of the aircraft from an airport. Airports would then require launch facility licences.

3.4.6 If the aircraft does not form part of the space object, then it appears that the aircraft may be entirely regulated by existing civil aviation laws. Unlike a launch facility licence, there is no specific treatment of an aircraft used to launch space objects. There is no discussion of:

a. ensuring the aircraft is operated in a 'competent' manner;

b. the aircraft operator having sufficient funding;

c. the design and construction of the aircraft being as effective and safe as is reasonably practicable; or

d. the risk of substantial harm being is as low as reasonably practicable.

The only conditions that apply expressly would be those arising as a consequence of an Australian launch permit.[28]

3.4.7 As the rocket would be mounted onto the aircraft at a facility that had a runway (typically, an airport), many of the activities being undertaken at that facility would be comparable to that of a launch facility (with a rocket lift off being replaced by a plane take off). Activities at the airport are likely to be as dangerous and sensitive as those being conducted at a traditional launch facility. In the US and UK, where an airport (or

[25] As discussed at paragraph 3.4.4, this ambiguity relates to the interaction of the definition of 'space object' and requirements for operating a 'launch facility'.

[26] Memorandum by Lorelei Peter to Kevin B Coleman (AST) titled 'Request for Legal Interpretation Regarding Scope of Virgin Galactic's WhiteKnightTwo Flight Activity Allowed under Launch License' dated 23 July 2018.

[27] *Launch and Reentry License Requirements* 14 CFR §450.3(b) (2021).

[28] This aligns with the current offence provisions associated with launching space objects from Australia or Australian airspace.

spaceport) is being used, irrespective of the launch type, a launch facility licence is required.[29]

3.4.8 We recommend the Australian Parliament consider:

a. the approach of the UK Government in the *Space Industry Act 2018* (UK) with respect launch facilities and air launch;

b. whether the aircraft from which a launch is taking place requires a licence under the Act to operate;

c. whether the airport (or equivalent) at which a space object/rocket is mounted on to an aircraft is considered a launch facility or otherwise requires a licence; and

d. if there is a need to specifically demarcate the interaction between Australian aviation and space laws, and regulators.

3.5 Forward looking regulation

3.5.1 The 2018 amendment of the *Space Activities Act 1998* was conservative in its scope, only tinkering with the law to make aspects more commercially acceptable.

3.5.2 When considering the Act, the Australian Parliament should adopt an ambitious approach and contemplate regulating future space activities including:

a. human spaceflight;

b. space resource exploitation;

c. mega-constellations; and

d. new and innovative in-space activities.

3.5.3 While many of these activities might not be undertaken in Australia in the short to medium term, considering these matters signals to the rest of the world that Australia is serious about space and should be considered as a base for future operations.

3.6 Part/division/section specific recommendations

3.6.1 <u>Section 3: Objects of the Act</u>

Section 3(c) makes express reference to the implementation of 'certain of Australia's obligations under the UN Space Treaties.' Across the five Space Treaties, there are 88 individual articles, several of which contain multiple binding obligations.

[29] *Commercial Space Launch Activities* 51 USC §50904 (2018); *Licence to Operate a Launch Site* 14 CFR pts 420, 431.

Providing clarity regarding the intended international obligations would provide certainty to operators:

a. to assist them in designing space activities compatible with the Australian legal framework; and

b. when they apply for licences under the Act.

3.6.2 Section 8: Definitions: Return

The current definition of 'return' can be interpreted as applying to the disposal of debris (which is considered a 'space object' for the purposes of the Act) where such a disposal may see a space object go below 100 km above mean sea level before disintegration.

We recommend adopting a definition that actively excludes debris being de-orbited as part of a disposal being considered a return. For example, the definitions of 'reenter', 'reentry' and 'reentry vehicle' in the US only apply where the 'reentry vehicle' is designed to return from outer space 'substantially intact'.[30] This actively excludes debris disposal.

3.6.3 Section 11: Launch facility licence required to operate a launch facility in Australia

While there are no concerns with the intention of this particular section, we raise concerns about the scope of s 11(b) of the Act. This provision has the capacity to capture a substantial number of individuals who may only be peripherally related to the operation of a launch facility.

Section 9 of the Act defines 'related party' to include several classes of person including:

a. those with a financial interest in a space object;

b. contractors, subcontractors or suppliers of a person involved in a launch; and

c. those involved in the preparation of a space object for launch or return.[31]

While we understand the intention behind the drafting, it may stand as a barrier for some entities to enter the sector due to the risks of being captured by offence provisions. Practically, a contractor engaged for an ancillary purpose may still be connected to the preparation for launch and may be captured by this offence provision. It is unrealistic to expect a contractor or sub-contractor to be aware of issued launch facility licences or other authorisations.

We recommend amending this sub-section to narrow the scope of the offence provision.

[30] See, *Commercial Space Launch Activities* 51 USC §§ 50902(2) and 50902(19) (2018).

[31] *Space (Launches and Returns) Act 2018* (Cth) s 9(1)(c).

3.6.4 Part 3, Division 2: Launch facility licences

Sections 18(a) and (d) use terms that are highly subjective (specifically, 'competent' and 'low as is reasonably practicable').[32] Without substantial guidance from the relevant regulator, this test is unlikely to be satisfied by any applicant.

We recommend that unspecific or highly discretionary provisions be removed from the Act, or the regulator be required (by the Act or Rules) to implement guidance for applicants.

3.6.5 Part 3, Division 3: Australian launch permits

a. Series of Launches

Section 28(1) allows for the relevant regulator to approve the launch of one or more space objects, or a series of launches of space objects.[33] On its face, this provision would allow a launch vehicle operator to obtain a single licence for several launches. Where a single licence authorises multiple launches, there are potential cost savings for a launch vehicle operator and relevant regulator.

Section 28(1)(b) undermines the intention of allowing an applicant to apply for a series of launches with a single application by making the determination of the relevant regulator contingent on 'the nature of any payloads to be carried'.[34] In a commercial launch setting, it will be the launch vehicle operator applying for a licence to use their vehicle (which may be mass produced) to launch payloads for third party customers. This will see the payload change in almost every instance.

This section should be amended to make the grant of a single authorisation for a series of launches contingent upon the nature of a 'launch vehicle' used as opposed to a 'payload'.

This amendment will be aided by the introduction of a separate Australian payload permit (as discussed at section 3.1 above).

b. Connected return

As noted at section 3.6.2 above, there is a need to clarify what is considered a 'return' for the purposes of the Act. At present, s 28(2) can be interpreted as authorising the return of a space object to the surface of the Earth (entirely intact) and/or the disposal of debris that may dip below 100 km above mean sea level (as debris is a space object for the purposes of the Act).

As applicants for an Australian launch permit require a debris mitigation strategy prior to a licence being granted,[35] authorisation should not be required for debris disposal and 'return' should be amended accordingly.

[32] Ibid ss 18(a), 18(d).

[33] Ibid s 28(1).

[34] Ibid.

[35] Ibid ss 34(2) – (4).

c. Subjective licence thresholds

We repeat the comments set out at section 3.6.4 above regarding the use of the terms 'competent' and 'low as is reasonably practicable'.[36]

We recommend that unspecific or highly discretionary provisions be removed, or the regulator be required (by the Act or Rules) to implement guidance for applicants.

3.6.6 Part 3, Division 4: Australian high powered rocket permits

a. Scope and intention

The scope and intention of this section is clear: to regulate activities taking place above controlled airspace but below 100 km above mean sea level. We recommend the Australian Parliament consider the approach of New Zealand in their *Outer Space and High-altitude activities Act 2017* (NZ) with respect to 'high-altitude' activities.[37]

The New Zealand law is not dependent on a high-altitude activity being a 'rocket' and is intended to capture activities such as high-altitude ballooning.[38]

We recommend the Australian Parliament consider the content, structure and intent of Part 2, Subpart 6 of the *Outer Space and High-altitude Activities Act 2017* (NZ) for the regulation of activities taking place above controlled airspace but below 100 km above mean sea level.

b. Subjective licence thresholds

We repeat the comments set out at section 3.6.4 above regarding the use of the terms 'competent' and 'low as is reasonably practicable'.[39]

Without substantial guidance from the relevant regulator, this test is unlikely to be satisfied by any applicant.

We recommend that unspecific or highly discretionary provisions be removed, or the regulator be required (by the Act or Rules) to implement guidance for applicants.

3.6.7 Part 3, Division 6: Return authorisations

a. Subjective licence thresholds

We repeat the comments set out at paragraph 3.6.4 above regarding the use of the terms 'competent' and 'low as is reasonably practicable'.

[36] Ibid ss 28(3)(a), 28(3)(c).

[37] *Outer Space and High-altitude Activities Act 2017* (NZ) pt 2 sub-pt 6.

[38] Joel Lisk and Melissa de Zwart, "Watch This Space: The Development of Commercial Space Law in Australia and New Zealand" (2019) 47(3) *Federal Law Review* 444, 448.

[39] *Space (Launches and Returns) Act 2018* (Cth) ss 38(2)(a), 38(2)(c).

We recommend that unspecific or highly discretionary provisions be removed, or the regulator be required (by the Act or Rules) to implement guidance for applicants.

3.6.8 Parts 4 through 7

These provisions of the Act remain untested. As at the date of this Submission there has been no claim made under the Act related to damage caused by a space object and no accidents involving space objects in Australia. At this stage it is difficult to assess these provisions without further information on how the Australian Government would exercise their powers under the Act.

4. Space (Launches and Returns) (General) Rules 2019 (Cth)

Unlike the Act, the Rules can be amended by the relevant Minister in accordance with s 110 of the Act.

The majority of our commentary regarding the Rules is based on:

- publicly available submissions to the Australian Space Agency in relation to consultation on the Rules before their release ("**2019 Consultation**");[40]
- direct, non-attributable, and off the record engagement with industry participants regarding their views and experiences in complying with the Act and Rules; and
- consideration of the laws of other nations.

Our comments on the Rules will be divided by Part and Division for the sake of simplicity.

4.1 General Comments

4.1.1 Specificity of obligations

The Rules lack specificity. While this grants the relevant regulator flexibility, it makes satisfying the application requirements difficult without regulatory guidance.

An example of this is the additional criteria for the grant of a launch facility licence, is that the design and construction of the facility be 'effective and safe as is reasonably practicable having regard to the proposed use of the facility.'[41] This test (effective and safe as is reasonably practicable) appears in several locations throughout the Rules.[42]

This test was criticised by several commenters to the 2019 Consultation as being ambiguous and having no meaning beyond the test already set out in the Act (for every instance of the test appearing throughout the Rules).[43]

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[40] Available at: https://consult.industry.gov.au/space/space-launches-and-returns-act-2018-draft-rules/consultation/published_select_respondent

[41] *Space (Launches and Returns) (General) Rules 2019* (Cth) s 5(2).

[42] *Space (Launches and Returns) (General) Rules 2019* (Cth) ss 35(2), 35(3), and 91(3).

[43] Melissa de Zwart and Joel Lisk (Adelaide Law School) Submission No 805031932 to Australian Space Agency, *Space (Launches and Returns) Act 2018: consultation on draft rules* (13-Jun-19);

We recommend that unspecific or highly discretionary provisions be removed, or the regulator be required (by the Act or Rules) to implement guidance for applicants.

4.1.2 Information about an applicant

Sections 13, 44, 74, 91 and 111 of the Rules require an applicant to specify information 'about which persons or entities have ownership, control or direction of the applicant, including the nationality of those person.'[44]

This is supplemented by a note that the intention is to capture 'significant shareholders'.[45] Where an applicant is a publicly listed entity or a large public company, the lack of specificity in this provision creates unnecessary ambiguity.

We recommend that that the Rules adopt a clear requirement such as the 10% shareholding threshold set out in the New Zealand regulations.[46]

4.1.3 Personnel notification requirements

Provisions regarding disclosure of certain personnel's residential addresses, qualifications, positions, duties and functions, and position changes are burdensome.[47]

We recommend steps are taken to reduce these information provision obligations to the lowest reasonable level.

4.1.4 No specified timeframes

There are no timeframes specified for the grant of an application at any place in the Rules. While we recognise that this allows the relevant regulator to consider applications with a sufficient level of detail and

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Jack Wright Nelson, Submission No 688989558 to Australian Space Agency, *Space (Launches and Returns) Act 2018: consultation on draft rules* (2019).

[44] *Space (Launches and Returns) (General) Rules 2019* (Cth) ss 13(e), 44(e), 74(e), 91(e) and 111(e).

[45] See, e.g. *Space (Launches and Returns) (General) Rules 2019* (Cth) s 44: note.

[46] *Outer Space and High-altitude Activities (Licences and Permits) Regulations 2017* (NZ) sch 2 item 2(e).

[47] Concerns were raised in (but not limited to): Melissa de Zwart and Joel Lisk, Adelaide Law School, Submission No 805031932 to Australian Space Agency, *Space (Launches and Returns) Act 2018: consultation on draft rules* (13-Jun-19); Mark Ramsey, Sitael Australia, Submission No 762965017 to Australian Space Agency, *Space (Launches and Returns) Act 2018: consultation on draft rules* (2019); David Ball, Space Environment Research Centre, Submission No 342704206 to Australian Space Agency, *Space (Launches and Returns) Act 2018: consultation on draft rules* (14-Jun-19); Nova Systems, Submission No 871259818 to Australian Space Agency, *Space (Launches and Returns) Act 2018: consultation on draft rules* (14-Jun-19); Space Industry Association of Australia, Space Industry Association of Australia, Submission No 732425089 to Australian Space Agency, *Space (Launches and Returns) Act 2018: consultation on draft rules* (14-Jun-19); Carley Scott, Equatorial Launch Australia, Submission No 249122259 to Australian Space Agency, *Space (Launches and Returns) Act 2018: consultation on draft rules* (14-Jun-19); and William Barrett, Asia Pacific Aerospace Consultants, Submission No 706465707 to Australian Space Agency, Space (Launches and Returns) Act 2018: consultation on draft rules (14-Jun-19)

ensure that public health and safety remain paramount, there is no incentive for efficient and timely decision making on the part of the relevant regulator.

International approaches vary. Applications for private remote sensing space systems in the US are subject to several mandatory timeframes. Part 960 of Title 15 of the Code of Federal Regulations ("**CFR**") requires the Secretary of Commerce (NOAA is the designated regulator) to:

a. determine if an application is a 'complete application' within 7 days of submission;[48]

b. within 7 days of confirming that a complete application has been received, determine the class of a particular application (remote sensing systems under the CFR have three tiers based on the technology they use);[49] and

c. make a final determination within 60 days of submission of the application. If the Secretary of Commerce fails to grant the application within this timeframe, the applicant may request the Secretary of Commerce grant the licence.[50]

We recognise that for a new regulator, a timeline such as this is unrealistic and that the grant of a private remote sensing space system is vastly different to launch licences with respect to risk profile.

Launch and return licensing in the US is also subject to specific processing timelines. The Secretary of Transportation (with the FAA as the designated regulator) must make a determination within 180 days of receiving an application for a launch or return authorisation (subject to certain exceptions). The FAA is required to justify any delays to the House of Representatives Committee on Science.[51]

The UK's response to submissions received as part of the development of the *Space Industry Act 2018* (UK)'s regulations indicated that it did not intend on introducing time constraints on applications as 'safety is at the heart of the [*Space Industry Act 2018* (UK)] regulatory regime … as this could affect the quality of the UK licensing regime.'[52]

Timeframes are used in Australian law. For example, s 90(10A) of the *Competition and Consumer Act 2010* (Cth) requires the Australian Competition and Consumer Commission ("**ACCC**") to determine an application for authorisation of a restrictive trade practice within 6 months of receipt of an application (subject to certain exemptions). This timeframe allows the ACCC to comprehensively consider an application and the impact of any conduct on the entire Australian

[48] *Licensing of Private Remote Sensing Space Systems* 15 CFR §960.5(c) (2020).

[49] Ibid §960.6.

[50] Ibid §960.7.

[51] *Commercial Space Launch Activities* 51 USC §50905(a)(1) (2018).

[52] Department for Transport and Department for Business, Energy & Industrial Strategy, *Unlocking Commercial Spaceflight for the UK: Space Industry Regulations Consultation: summary of views received and the Government's response* (UK Government, 5 March 2021) [6.52].

market. This timeline ensures applications are processed in a timely manner.

As there have been several public complaints made regarding the processing times for applications under the Act,[53] we recommend the Rules be amended to introduce a 6-to-8-month timeframe that can be extended in the instance the relevant regulator has been unable to make a final determination (at no additional cost to the applicant).

4.1.5 General waiver and alternative means of compliance

There is no general power contained in the Rules for the relevant regulator to, following an application by an applicant, waive or modify the operation of a particular rule.

In light of the objects of the Act – to ensure a balance between public health and safety and the removal of barriers to entry for business[54] – a generalist ability to apply to the relevant regulator to waive or modify specific requirements should be considered.

This would align with the provisions of the FAA's current Part 450 of Title 14 of the CFR that specifies how an applicant can apply for a launch or re-entry permit. These rules allow applicants to request waivers[55] or modifications to the licence application rules by demonstrating an equivalent level of safety ("**ELOS**").[56] This process recognises that there may be alternative ways of satisfying public health and safety requirements that may be more compatible with the nature of a specific activity and allows for a reduction in the overall regulatory burden.

We recommend that both a general waiver and alternative means of compliance provisions be introduced into the Rules.

4.2 Part 1: Preliminary

4.2.1 'Technical recognition instrument'

As discussed at section 3.3 above, the Rules make provision for the creation of an 'instrument in which Australia recognises any other country's licensing or certification of a launch facility or space object, or part of a launch facility or space object.'[57]

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[53] Amos Aikman, 'Countdown on but space industry dragged back to Earth by bureaucratic delays' The Australian (1 September 2020) https://www.theaustralian.com.au/science/countdown-on-but-space-industry-dragged-back-to-earth-by-bureaucratic-delays/news-story/302a9ce4f3da89433ee82c3aad78a0d1; Matt Garrick, 'Arnham Space Centre, luxury hotel in doubt as major NT projects face significant delays' Australian Broadcasting Corporation (3 September 2020) https://www.abc.net.au/news/2020-09-03/east-arnhem-space-agency-landbridge--westin-hotel-uncertain/12621914.

[54] *Space (Launches and Returns) Act 2018* (Cth) s 3(b).

[55] *Petition and Rulemaking Procedures* 14 CFR pt 404 (2018).

[56] *Launch and Reentry License Requirements* 14 CFR §450.37 (2021)

[57] *Space (Launches and Returns) (General) Rules 2019* (Cth) s 4 (definition of 'technical recognition instrument').

There is only limited use of this term throughout the Rules and no mechanism through which such an instrument will be created.

We recommend that 'technical recognition instruments' be:[58]

- further elaborated in the Rules;
- expanded in scope and specificity; and
- deployed as a measure of compliance throughout the Rules.

4.3 Part 2: Launch facility licences

4.3.1 Operation of a Launch Facility

The Rules require that a launch facility be operated in accordance with the Act and that a launch facility not be used for any unauthorised launch.[59] There is no provision of the Rules or Act that grant a launch facility operator access to a register of Australian launch permits or other authorisations.

We recommend that the Rules be amended to require the relevant regulator to provide copies of any approved Australian launch permit to the operators of Australian launch facilities nominated in that Australian launch permit.

4.3.2 Launch Safety Officer

We note that it is a condition of a launch facility licence that when an Australian launch permit holder grants a Launch Safety Officer access to a launch facility, the launch facility licensee must allow them to enter the facility.[60]

We recommend amendments (to the Act or Rules) to ensure that the Launch Safety Officer provisions of the Act apply directly to launch facility licensees.

4.3.3 Launch facility type (air and sea-based launch)

As set out at section 3.4 above, there is substantial ambiguity regarding the treatment of air and sea-based launches.

We recommend work be undertaken to clarify the obligations of an applicant and launch facility licensee with respect to these facility types.

[58] See, e.g. Myriota, Submission No 166902247 to Australian Space Agency, *Space (Launches and Returns) Act 2018: consultation on draft rules* (2019) 3, Scott Schneider, Individual, Submission No 53934197 to Australian Space Agency, *Space (Launches and Returns) Act 2018: consultation on draft rules* (14-Jun-19); Nova Systems, Submission No 871259818 to Australian Space Agency, *Space (Launches and Returns) Act 2018: consultation on draft rules* (14-Jun-19).

[59] *Space (Launches and Returns) (General) Rules 2019* (Cth) s 7(1).

[60] Ibid s 7(3).

4.4 Part 3: Australian launch permit

4.4.1 Connected Return

As discussed at section 3.6.2 above, the Act is ambiguous regarding the difference between an intentional return where there is an intention of recovering a space object and disposal of debris that may not burn up before 100 km above mean sea level. 'Connected return' is not a defined term, and is used in the Rules with no associated temporal element.

Despite these matters, the Rules permit the authorisation for connected returns.

We recommend the Rules be amended to:

a. better distinguish between the return of space objects and disposal of space objects; and

b. define the extent and scope of a 'connected return'.

4.4.2 Payload obligations

Section 50 of the Rules details the information that an applicant for an Australian launch permit is required to provide the relevant regulator.[61] The nature of this information requires the launch permit applicant to request this information directly from a payload operator.

An applicant for an Australian launch permit is also required to provide the relevant regulator with an undertaking that a payload owner will:

> (i) update the Agency on a monthly basis (until advised by the Agency that updates are no longer required) on efforts to establish communication with the payload; and
> (ii) inform the Agency when communication with the payload is established; and
> (iii) inform the Agency if communication with the payload is subsequently lost; and
> (iv) not operate the payload in a manner that causes Australia to be liable for any damage under the Liability Convention; and
> (v) not operate the payload in a manner that the owner knows, or ought reasonably to know, will negatively affect the national security of Australia; and
> (vi) inform the Agency when end of mission manoeuvres, as identified in the debris mitigation strategy, are commenced;[62]

Notably, this is a requirement for the Australian launch permit applicant to provide the undertaking from the payload owner – not an obligation on the payload owner to provide the undertaking to the relevant regulator.

An undertaking is a promise to behave in a certain way. There is no basis in the Act to enforce such an undertaking. Further there is no discussion in the explanatory statement for the Rules regarding how

[61] Ibid s 50.

[62] Ibid s 50(1)(j).

the relevant regulator intends to enforce these undertakings despite queries regarding their validity.[63]

This position reinforces the issues highlighted in section 3.1 regarding the lack of a specific Australian payload permit. We recommend that the Act be amended to introduce an Australian payload permit and the Rules be amended to reflect the introduction of that licence type.

4.4.3 Suitably qualified expert

The suitably qualified expert provisions of the Rules have been the subject of several submissions to this Inquiry.[64] We defer to the submissions of industry regarding the practicality of being required to engage a suitably qualified expert to conduct an external assessment of an applicant's risk hazard analysis, flight safety plan and technology security plan.

To summarise the concerns as we have identified them, the requirement to engage suitably qualified experts to conduct external reviews of risk hazard analyses, flight safety plans and technology security plans:[65]

a. does not consider the commercial reality of the space industry whereby some operators/applicants (internationally) may have a stronger understanding of the relevant risks (in practice) and how to mitigate them than any Australian suitably qualified expert.

b. imposes a substantial cost burden on launch operators who undertake the creation of risk hazard analyses, flight safety plans and technology security plans in-house. The subsequent requirement to engage a suitably qualified expert (of which there are not many) requires applicants to pay for the same work multiple times.

c. presents compliance concerns as there remains ambiguity between the interpretation of the suitably qualified expert provisions of the Rules and the definitions of the Act. A suitably qualified expert must not be a 'related party' of a licence applicant. Section 9 of the Act defines 'related party' to include contractors and subcontractors involved in a launch. A suitably qualified expert will, as a matter of necessity, be a contractor of the licence applicant in connection with a launch. This presents an issue of circular drafting in which a licence applicant is unable to contract with a suitably qualified expert that is not a related party.

[63] Melissa de Zwart and Joel Lisk (Adelaide Law School) Submission No 805031932 to Australian Space Agency, *Space (Launches and Returns) Act 2018: consultation on draft rules* (13-Jun-19).

[64] Southern Launch, Submission No 46 to Standing Committee on Industry, Innovation, Science and Resources, *Developing Australia's Space Industry* (29 January 2021); Joint Submission of Equatorial Launch Australia, Gilmour Space Technologies and Southern Launch, Submission No 52 to to Standing Committee on Industry, Innovation, Science and Resources, *Developing Australia's Space Industry* (29 January 2021).

[65] Nova Systems, Submission No 871259818 to Australian Space Agency, *Space (Launches and Returns) Act 2018: consultation on draft rules* (14-Jun-19) 3 – 4.

We recommend that the Australian Government:

d. reconsider the suitably qualified expert requirements as they are currently drafted; and

e. reconsider the necessity of suitably qualified experts where the regulator has indicated its intention to engage external consultants to assess licence applications and fully recover this cost from applicants.

4.5 Part 4: Overseas payload permit

4.5.1 Licence terms

The Rules impose no mandatory licence terms on overseas payload permit holders.[66] This appears to be recognition of the possibility that foreign laws may impose obligations on Australian payload operators launching on foreign rockets.

This position would appear to create an incentive for Australian entities to launch payloads in foreign jurisdictions with little to no regulation of payloads.

We recommend, at a minimum, the undertaking requirements from s 50(1)(j) of the Rules be replicated as licence conditions for Australian payloads overseas. This will see the following implemented as licence terms that an overseas payload permit holder must:

a. update the relevant regulator on a monthly basis (until advised by the relevant regulator that updates are no longer required) on efforts to establish communication with the payload; and

b. inform the relevant regulator when communication with the payload is established; and

c. inform the relevant regulator if communication with the payload is subsequently lost; and

d. not operate the payload in a manner that causes Australia to be liable for any damage under the Liability Convention; and

e. not operate the payload in a manner that the owner knows, or ought reasonably to know, will negatively affect the national security of Australia; and

f. inform the relevant regulator when end of mission manoeuvres, as identified in the debris mitigation strategy are commenced.

[66] See *Space (Launches and Returns) (General) Rules 2019* (Cth) pt 4.

4.5.2 Standard launch facility list

Section 78(2) of the Rules refers to a 'standard launch facility list published by the Department' from time to time.[67] No further information has been provided about this list or how a foreign launch facility can be added to it.

We recommend:

a. a specific process through which a launch facility can be added to the list be included in the Rules;

b. the creation of an obligation to publish the standard facility list on the Department or relevant regulator's website; and

c. a similar provision to s 78(2) of the Rules be included in Part 3 of the Rules relevant to Australian launch permits.

4.6 Part 5: Return authorisation

4.6.1 Suitably qualified expert

We refer to our comments on suitably qualified experts are section 4.4.3 above.

4.6.2 Classification of return

We refer to our comments at sections 3.6.2, 3.6.5b and 4.4.1 above regarding returns and connected returns.

[67] *Space (Launches and Returns) (General) Rules 2019* (Cth) s 78(2).

SCHEDULE 1

SUMMARY OF RECOMMENDATIONS

This Schedule 1 is a summary of the recommendations contained in this Submission.

1. With respect to the *Space (Launches and Returns) Act 2018* (Cth), the Adelaide Law School recommends:

    1.1 the creation of a new 'Australian payload permit';

    1.2 the creation of a new Part or Division of the Act, or a new legislative instrument, regulating orbital activities;

    1.3 the introduction of express foreign licensing recognition provisions into the Act;

    1.4 the Australian Parliament amend the Act to provide greater clarity regarding licensing and operation of aircraft capable of launching space objects (air launch);

    1.5 the Australian Parliament should consider ambitious, future looking reform to consider matters including human spaceflight, space resource exploitation and other new and innovative space activities;

    1.6 the Australian Parliament amend or otherwise consider:

        1.6.1 how international treaty obligations are implemented through the Act;

        1.6.2 refining how the Act defines 'returns';

        1.6.3 narrowing the scope of the offence provisions associated with launch facility licensing;

        1.6.4 either the removal of unspecific or highly subjective threshold tests or introduce an obligation to provide regulatory guidance;

        1.6.5 amending the legislative thresholds for the grant of a single Australian launch permit for a series of launches; and

        1.6.6 replacing laws focused on 'high powered rockets' with laws similar to those implemented in New Zealand focusing on 'high-altitude activities'.

2. With respect to the *Space (Launches and Returns) (General) Rules 2019* (Cth), the Adelaide Law School recommends:

    2.1 where possible, the relevant regulator amend the Rules to ensure they are sufficiently clear, unambiguous and specific;

    2.2 applicant information provision requirements are:

        2.2.1 sufficiently clear and unambiguous; and

        2.2.2 as simple and narrow as possible;

    2.3 the introduction of application assessment timeframes to ensure the relevant regulator is processing applications in a timely and efficient manner;

2.4 the introduction of an ability for an applicant to request a ‘waiver’ or alternative means of compliance for the entire Rules or in the alternative, specific Rules;

2.5 the introduction of a generalist power to recognise foreign licences for regulated activities or expansion of existing provisions related to ‘technical recognition instruments’;

2.6 amendments to the Rules associated with launch facility licences that allows a launch facility licensee to receive copies of all launch permits associated with their facilities;

2.7 amendments to the Launch Safety Officer provisions to contemplate direct imposition obligations on launch facility licensees;

2.8 comprehensive amendments to more completely consider air launch;

2.9 changes to the Rules to better distinguish between the return of spacecraft and disposal of space objects, and define connected returns;

2.10 the Australian Parliament and relevant regulator reconsider the requirements for applicants to engage ‘suitably qualified experts’;

2.11 consideration of imposing minimal mandatory licence terms of overseas payload permit holders; and

2.12 an expansion of the ‘standard facility list’ concept found in s 78(2) of the Rules.