Space Activities Amendment (Launches and Returns) Bill 2018

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Links: The links to the Bill, its Explanatory Memorandum and second reading speech can be found on the Bill’s home page, or through the Australian Parliament website.

When Bills have been passed and have received Royal Assent, they become Acts, which can be found at the Federal Register of Legislation website.

All hyperlinks in this Bills Digest are correct as at August 2018.
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The Bills Digest at a glance

Purpose of the Bill

- The Bill amends the existing regulatory framework for Australia’s space activities contained in the *Space Activities Act 1998* (the Act). In particular, the amendments will:
  - update the licensing framework for space-related launches and returns that occur within Australia, or involve Australian interests overseas
  - broaden this framework to include high power rockets and launches from aircraft
  - introduce requirements for a debris mitigation strategy for the launch of space objects
  - update the insurance requirements associated with launches and returns and
  - replace the associated subordinate legislation, currently the *Space Activities Regulations 2001*, with Rules that may be made by the Minister.

Background

- A number of reviews and public consultations have been undertaken into the regulatory system for civilian space activities and Australia’s space industry capabilities.
- This Bill builds on the government’s commitment to encourage investment and innovation in the space industry within Australia and to rebalance insurance requirements to be more comparable with international players.

Stakeholder concerns

- There is broad support amongst stakeholders for changes to insurance and debris mitigation requirements, and reform of the licencing regime. However, some believe that further clarity is required for some launch and payload requirements.
- Stakeholders note that the practical effects of the reforms are difficult to assess in the absence of the proposed subordinate legislation.
- Not all stakeholders believe the reforms have gone far enough to modernise the Act in the global context, or that the amendments will create a regulatory regime that strongly encourages innovation and investment in the industry.
- Inclusion of high power rockets in the Act has raised a number of concerns regarding the interaction with existing regulatory arrangements, insurance requirements and non-commercial rocketry.
- Submissions from the aviation sector raise concerns that the Bill does not adequately address airspace issues including risk mitigation, safety requirements, accident investigation and the administration of very high altitude airspace.
Purpose of the Bill
The purpose of the Space Activities Amendment (Launches and Returns) Bill 2018 (the Bill) is to amend the *Space Activities Act 1998* (the Act) to ensure safe industry participation, and to encourage investment and innovation through legislative simplification. This is being done by broadening the regulatory framework to include high power rockets and launches from aircraft. The Government also aims to reduce barriers to participation in the space industry by streamlining the approvals processes and insurance requirements for launches and returns.

Structure of the Bill
The Bill has two schedules:

- Schedule 1 contains the amendments to the *Space Activities Act* and
- Schedule 2 contains a consequential amendment to the *Customs Tariff Act 1995*, to refer to the new title of the Act.

Background
The regulatory framework for space activities in Australia, and overseas activities that involve Australian interests, is provided by the *Space Activities Act*. The Act was originally developed with both commercial and legal imperatives in mind. At the time of drafting, several private sector groups were proposing to build commercial rocket launch facilities in Australian territory. The Act was therefore developed to provide a comprehensive regulatory framework to oversee licencing, safety and liability issues associated with launch facilities, launches and returns. The Act also implemented certain of Australia’s obligations under a number of UN space treaties (discussed below). These place direct responsibility on Australia for space activities and liability on the Australian Government for damage caused by space objects launched from Australia or Australians overseas.

The licencing regime is based on the types of technologies that were available for space activities when the Act was originally drafted, particularly in relation to the launch of objects into space and their return to Earth. Since then, the ways in which objects have been launched into space and orbit have developed to include new systems, which are not explicitly covered by the Act. There has also been a transition from government-controlled space programs to much greater involvement from the private sector. This has affected the types of launching arrangements that are available and has led to circumstances that are not well covered by the existing provisions of the Act. Certain fee and insurance requirements provided under the Act are also seen as more onerous compared with other space-faring nations and are therefore a potential barrier to innovation and investment in Australia.

Regulatory review and consultation
On 24 October 2015 the Australian Government announced a review of the *Space Activities Act* (the Review). This Review aimed to help ‘ensure the sector keeps pace with international change

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2. Ibid.
3. This was the world’s first legislation covering commercial space launch operations: see K Dougherty, *Australia in Space: a history of a nation’s involvement*, ATF Press, Hindmarsh, South Australia, 2017 (available in the Parliamentary Library).
and technological developments without adding unnecessary impediments to private investment’. 5

An Issues Paper was prepared that provides the context and details for the terms of reference for the Review. 6 Submissions to the Review were received during a two month public consultation period from February to April 2016, with confidential submissions also received from Commonwealth and international stakeholders. 7

Professor Steven Freeland prepared an analysis report on the public submissions and this was completed in August 2016. 8 Professor Freeland presented 19 options for government consideration based on the non-government input to the Review. The major issues identified through the analysis included the structure of the Act, the fee structure and complexity of the approvals processes, the insurance/financial requirements, the suitability of the Act in relation to emerging space activities and participants, and its alignment with related legislation. 9 Professor Freeland concluded that amendments to the Act would not be able to comprehensively address the many issues raised during the review:

It would be naïve to suggest that an amended Act would provide all of the answers, even though it may meet some of the issues raised. A deeper analysis of the structural, regulatory and technological aspects of Australia’s participation in space-related activities is required. 10

The Department of Industry, Innovation and Science published a Legislative Proposals Paper in March 2017. 11 The Legislative Proposals Paper presented key proposals for change to the regulatory framework based on the issues identified during the review processes. 12 A significant number of these proposals relate to processes covered in subordinate instruments or are issues beyond the scope of the Bill. The focus of the proposals included the overall framework, structure, purpose and objects of the Act; the types of authorisations required for launch facilities, launches and returns; Australia’s international obligations, including debris mitigation, liability and insurance, and nuclear power sources; and the processes and fees associated with applications for authorisations being made under the Act.

A further consultation period was held until April 2017 to receive submissions on these proposals. The Space Activities Amendment (Launches and Returns) Bill 2018 (the Bill) was subsequently prepared. 13

**Australia’s international obligations and bilateral agreements**

One of the objects of the Act is to implement certain of Australia’s obligations under the United Nations (UN) space treaties. Australia is a signatory to five UN space treaties. These place direct responsibility on Australia for its national space activities, as well as unlimited liability for damage caused by space objects launched from Australia or by Australians overseas. 14

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5. C Pyne (Minister for Industry, Innovation and Science), *Atmosphere is right for a review of our space activities*, media release, 24 October 2015.
9. Ibid., p. vi.
10. Ibid., p. 124.
12. Ibid., p. 4.
The international instruments are the:

- **Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies** (1967)—the ‘Outer Space Treaty’\(^{15}\)
- **Convention on International Liability for Damage Caused by Space Objects** (1972)—the ‘Liability Convention’\(^{16}\)
- **Convention on Registration of Objects Launched into Outer Space** (1974)—the ‘Registration Convention’\(^{17}\)
- **Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space** (1968)—the ‘Rescue Agreement’ or ‘Astronauts and Objects Agreement’\(^{18}\) and
- **Agreement Governing the Activities of States on the Moon and Other Celestial Bodies** (1979)—the ‘Moon Agreement’ or ‘Moon and other Celestial Bodies Agreement’\(^{19}\)

In addition, the Act implements the **Agreement between the Government of Australia and the Government of the Russian Federation on Cooperation in the Field of the Exploration and Use of Outer Space for Peaceful Purposes** (the Intergovernmental Agreement with Russia).\(^{20}\)

Certain aspects of the Intergovernmental Agreement with Russia were given effect through the **Space Activities Amendment (Bilateral Agreement) Act 2001**.\(^{21}\) These amendments were necessary before the agreement could enter into force,\(^{22}\) which it did on 12 July 2004. Article 16 of the agreement provides that it is concluded for a period of ten years and automatically extends for another ten years if neither Party notifies the other Party of their intention to terminate the agreement. The agreement can be terminated by twelve months written notice during this extension period.

The Intergovernmental Agreement with Russia provided a framework for space collaboration with Russia and was required to facilitate the development of specific space projects at Woomera and Christmas Island:

> The Agreement provides a treaty framework for collaboration in a broad range of scientific and industrial space projects with Russia. These will bring together the complementary capabilities of Australia and the Russian Federation in the space sector. Australia is seeking to develop its own space sector, with particular focus on the potential for commercial launch operations arising from our geographic and climatic circumstances and our stable political and economic conditions. The Russian

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21. For further context, see ML James, **Space Activities Amendment (Bilateral Agreement) Bill 2001**, Bills digest, 152, 2000–01, Parliamentary Library, Canberra, 2001.
Federation is recognised as one of the leading space-faring nations of the world, and is among the most advanced in launch technologies. An early focus under the Agreement will be collaboration in the development of commercial spaceports. Two proposed spaceports - the Asia Pacific Space Centre facility proposed for Christmas Island and the Spacelift facility proposed for Woomera - would use wholly Russian launch vehicles. The Agreement is necessary for both projects to proceed.\footnote{^{23}}

Despite initial developments, these projects did not progress.\footnote{^{24}} The legislative review noted that while bilateral agreements remain important, it may not be necessary to include them in the objects of the Act.\footnote{^{25}}

**Space industry review**

On 13 July 2017 the Australian Government announced a review of Australia’s space industry capability to ‘develop a long-term plan to grow this important and exciting sector’ in order to capitalise on the increasing opportunities within the global space industry sector (the Capability Review).\footnote{^{26}} The Capability Review was conducted by an Expert Reference Group chaired by Dr Megan Clark. It was conducted in the context of reform of the space legislation and the Government’s desire to ‘review its civil space policy and refine its strategic, long-term plans for this important sector’.\footnote{^{27}}

The Capability Review process produced an Issues Paper in August 2017 for public consultation that recognised the separate review of the Act:

> ... with the objective of any reform to reflect advances in technologies and provide a regulatory environment that is appropriately conducive to commercial investment in the space sector. Reform of the legislation is currently underway.\footnote{^{28}}

The final report proposes an Agency Charter for an Australian Space Agency with the role and responsibility to act as a whole-of-government agency by:

> ... [r]egulating 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.\footnote{^{29}}

The Capability Review proposes that national space regulation should be coordinated through this Agency and this formed the basis of Recommendation 7 in the final report:

> ... an important role of the Agency will be to coordinate national space regulation in a way that provides certainty for businesses; minimises regulatory burdens and bureaucratic red tape; and otherwise assists the growth of the space industry sector and maximises its ability to innovate.

> ...

\begin{itemize}
  \item\footnote{^{24}} Further information on the history of these and other spaceports is contained in Dougherty, *Australia in Space*, op. cit. (available in the Parliamentary Library).
  \item\footnote{^{25}} DIIS, *Legislative proposals paper*, op. cit., p. 9.
  \item\footnote{^{26}} A Sinodinos (Minister for Industry, Innovation and Science), *Expert review of Australia’s space industry capabilities to participate in global market*, media release, 13 July 2017.
  \item\footnote{^{27}} DIIS, *Terms of reference for a review of space industry capability*, DIIS website.
  \item\footnote{^{29}} Expert Reference Group, *Review of Australia’s space industry capability*, March 2018, p. 82.
\end{itemize}
Recommendation 7: 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.\(^{30}\)

**Government response**

The formal *Australian Government Response to the Review of Australia’s Space Industry Capability* (the Government Response) was released on 14 May 2018.\(^{31}\) The Government Response affirmed a commitment to the ‘development of Australia’s space industry to drive investment, create jobs and position Australia as a key participant in the global space economy’.\(^{32}\)

The Government supports, notes or supports in principle all nine recommendations of the Capability Review.\(^{33}\) Recommendation 7 regarding regulatory approval processes is supported in principle:

> The Australian Government has undertaken a review of the *Space Activities Act 1998* 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.

> The Australian Government will ensure it continues to meet its commitments, including those under international instruments relating to space and arms control.\(^{34}\)

The Government established the Australian Space Agency (the Agency) from 1 July 2018 with $26 million operational funding from 2018–19 to 2021–22.\(^{35}\) The Agency is to finalise a Charter during its first three months of operation.\(^{36}\) The Agency will be responsible for developing a strategy and investment plan to grow Australia’s space industry and for undertaking international engagement activities.\(^{37}\)

The Agency will be established in the Department of Industry, Innovation and Science. The Government will consider whether the Agency will become a statutory agency after a review of the Agency, which will commence within four years of establishment.\(^{38}\)

**Committee consideration**

*Senate Standing Committee for Selection of Bills*

The Selection of Bills Committee considered the Bill at its meeting of 20 June 2018 but was unable to reach agreement.\(^{39}\) The Senate subsequently agreed to refer the Bill to the Economics Legislation Committee for inquiry.\(^{40}\) Details of the inquiry are on the [inquiry webpage].\(^{41}\)

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30. Ibid., p. 53.
33. Ibid.
34. Ibid., p. 7.
35. Ibid., pp. 3–4.
36. Ibid., p. 7.
37. Ibid., pp. 3–4.
38. Ibid., p. 5.
The reasons for the referral include:

To ascertain whether the Bill meets its stated objectives of modernising and simplifying the Act

To ascertain whether the Bill will act to facilitate the development of a flourishing Australian commercial space industry

To examine the extent the Bill meets Australia’s international treaty obligations on outer space.  

The Committee reported on 13 August 2018 and recommended that the Bill be passed. The Committee encouraged the Government to ‘give high priority to finalising the draft rules as soon as possible and releasing them for consultation’ in order to address any uncertainties raised during the inquiry. The Australian Labor Party (Labor) Senators made additional comments to the report, which are canvassed below.

**Senate Standing Committee for the Scrutiny of Bills**

The Scrutiny of Bills Committee has considered and raised two issues. The first issue related to the incorporation of external material into the law. **Proposed section 110** allows the Minister to make Rules that may apply, adopt or incorporate, with or without modification, any matter contained in an instrument or other writing as in force or existing from time to time. This express provision is necessary to override subsection 14(2) of the **Legislation Act 2003**, which states:

> Unless the contrary intention appears, the legislative instrument or notifiable instrument may not make provision in relation to a matter by applying, adopting or incorporating any matter contained in an instrument or other writing as in force or existing from time to time.

However, the Scrutiny Committee noted that no explanation is provided as to what type of instruments or documents these may be, nor why it may be appropriate to incorporate matters into instruments or writings as in force from time to time. The Committee also noted that no explanation is provided on whether such incorporated instruments or documents will be made freely available. The Committee requested the Minister provide advice on these issues, including why it is necessary that the Rules incorporate documents as in force or existing from time to time, rather than at a particular time, such as when the Rules are made. The Committee also requested advice as to the type of documents that it is envisaged may be applied, adopted or incorporated by reference in rules made under **proposed section 110**; and whether these documents will be made freely available to all persons interested in the law.

The Scrutiny Committee also drew Senators’ attention to the standing appropriation in **item 129** of Schedule 1 of the Bill (**proposed subsection 75E(4)**). This subsection appropriates the Consolidated Revenue Fund for the purposes of payments by the Commonwealth under the preceding subsection, which relates to circumstances in which the Commonwealth may be liable to pay compensation for damage caused by a high power rocket launch. A similar provision

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45. **Proposed subsection 110(3)**, inserted by **item 187** of Schedule 1 of the Bill.
46. Senate Standing Committee for the Scrutiny of Bills, *Scrutiny digest*, op. cit., p. 47. This wording reflects existing subsection 110(2) of the Act that provides the ‘Regulations may make provision for … any matter contained in a written instrument … as in force at a particular time or as in force from time to time’.
47. Ibid.
48. Ibid., p. 183.
already exists under the Act in relation to launches and returns covered by a launch permit or overseas launch certificate.\(^49\)

The Minister provided a response on 27 July 2018, which the Committee responded to on 15 August 2018.\(^50\) The Committee noted the Minister’s response:

\[...\] it is necessary and appropriate for the rules to incorporate documents as in force or existing from time to time, as this would increase the rules’ flexibility to respond to the rapidly evolving nature of space technologies and the need to quickly and efficiently review and update insurance arrangements in response to safety and market interests.\(^51\)

The Minister also advised that the documents predicted to be referred to in the Rules include the Flight Safety Code and the Maximum Probable Loss Methodology (which relates to the calculation of insurance requirements).\(^52\) These will be made freely available on the Australian Space Agency website.

The Committee requested that the key information provided by the Minister be included in the Explanatory Memorandum.\(^53\)

**Policy position of non-government parties/independents**

In their additional comments to the Senate Economics Committee report, the Labor Senators indicated broad support for the Bill and recommended that ‘the Senate support the Bill, noting its deficiencies and lack of clarification from the government in a number of areas’.\(^54\) They noted the need for regulatory reform, but found that the Bill 'tinkers around the edges', and stated that the Government must clarify its intentions for the interaction of space regulation with the existing civil aviation regulatory system.\(^55\) The Labor Senators considered that although using subordinate legislation for operation details has advantages, it also 'risks impeding the ability of Senators to understand what they are being asked to vote on'.\(^56\) They also state that legislation is the only guarantee of a continuing Australian Space Agency and they are concerned by the lack of legislated role for the Agency.\(^57\)

At the time of writing, there do not appear to have been any public comments on the Bill from other non-government parties or independents.

**Position of major interest groups**

Major interest groups and other stakeholders have provided submissions to the regulatory review and Legislative Proposals Paper, as discussed earlier. Submissions have also been made to the Senate Economics Legislation Committee (the Economics Committee) Inquiry into the provisions of the Bill, and additional discussion is provided in the Committee report.\(^58\)

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49. *Space Activities Act*, subsection 69(5).
51. Ibid., p. 50.
52. Ibid., p. 49.
53. Ibid., p. 50.
55. Ibid., pp. 27, 29.
56. Ibid., p. 28.
57. Ibid., pp. 28–29.
Industry participants and representatives provided broad support for the Bill. Some submitters to the Economics Committee inquiry, including the Space Industry Association of Australia, did however believe that the Bill lacked a strong statement of purpose relating to the growth and encouragement of the Australian space industry, and encouraged the Parliament to include one. The Australia New Zealand Space Law Interest Group noted that while this may have some merit, 'greater detail would diminish the scope of the regulator’s discretion and agility to respond progressively in an otherwise innovative community'.

There was some disappointment that the majority of the Act will remain unaltered, with the Adelaide Law School submitting that ‘a large majority of the complaints about the Space Activities Act, as recognised in the 2017 Submission Analysis Report and Legislative Proposals Paper, remain’. The Australia New Zealand Space Law Interest Group found that many proposals relevant to the legislation are not addressed in the Bill, and that ‘much of the Bill is actually the existing Act’.

Multiple stakeholders stated that the practical effects of the amendments are difficult to assess in the absence of the proposed subordinate legislation, the Rules. This prevented them making an informed assessment of what the amendments will mean. For example, the Space Industry Association of Australia queried whether the Rules will contain guidance on the circumstances in which the Minister may waive or reduce application fees or insurance requirements, whether the fee structure will be globally competitive, or whether the debris mitigation strategy requirements will be workable for all activities that appear to be covered by this proposed provision.

The Australian Airline Pilots’ Association was concerned by the associated lack of information on the Flight Safety Code, which is currently referred to in the Space Activities Regulations 2003, and whether the Code remains suitable for the expanded suite of space launch and return activities proposed by the Bill. Considering the Rules will contain many key details, definitions and methods, it was also submitted that a lack of any requirement for consultation before amending the Rules introduced uncertainty into the regulatory system.

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61. Adelaide Law School, Submission, op. cit., p. 3.


63. Australian Airline Pilots’ Association (AusALPA), Submission to Senate Economics Legislation Committee, Inquiry into the Space Activities Amendment (Launches and Returns) Bill 2018 [Provisions], [Submission no. 18], 20 July 2018, p. 3; International Aerospace Law & Policy Group, Submission to Senate Economics Legislation Committee, Inquiry into the Space Activities Amendment (Launches and Returns) Bill 2018 [Provisions], [Submission no. 17], 20 July 2018, p. 6; Space Industry Association of Australia, Submission, op. cit., pp. 2, 10; Southern Launch, Submission to Senate Economics Legislation Committee, Inquiry into the Space Activities Amendment (Launches and Returns) Bill 2018 [Provisions], [Submission no. 11], July 2018, p. 1; Adelaide Law School, Submission, op. cit., pp. 4–5; Asia Pacific Aerospace Consultants, Submission, op. cit., p. 4; Australia New Zealand Space Law Interest Group, Submission, op. cit., pp. 7–8.

64. Space Industry Association of Australia, Submission, op. cit., p. 10; see also Inovor Technologies, Submission, op. cit., p. 6.

65. Space Industry Association of Australia, Submission, op. cit., p. 9; Asia Pacific Aerospace Consultants, Submission, op. cit., p. 6.


67. Australian Airline Pilots’ Association, Submission, op. cit., p. 3.

68. Australia New Zealand Space Law Interest Group, Submission, op. cit., pp. 7–8.
Some stakeholders were concerned that the amendments risk creating inefficient processes and not actually support industry development. For example, while one purpose of the Bill is to streamline the approvals process, they noted that the most utilised instrument under the Act, the overseas launch certificate, will remain substantially unaltered except for a change in name to an overseas payload permit and an extra requirement relating to debris management.

The industry welcomed the proposed changes to the insurance requirements associated with launches and returns. However, stakeholders advocated that further consideration needs to be given to avoid overlapping insurance coverage, such as may occur when insurance requirements for payloads being launched overseas may overlap with overseas launch insurance.

Stakeholders also proposed that a risk-based approach to setting insurance requirements should be incorporated into the regulatory system to allow for the calculation of the most appropriate insurance requirements for lower risk circumstances.

**High power rockets**

There was broad support for extending the regulatory system to include launches of high power rockets. Some stakeholders expressed concern that ambiguous definitions and the addition of one specific type of space launch vehicle, high power rockets, may complicate the regulatory process for other types of launch vehicle that aren’t explicitly referenced.

One purpose of the Bill is to account for new launch technologies, however some stakeholders expressed concern that the terminology used may not account for the many launch variations that exist or may exist in the future.

Some stakeholders were also concerned by how the amendments will interact with the existing regulatory regime for rockets. In particular, the Australian Airline Pilots’ Association was critical that the amended Act will not clearly integrate with other legislation, such as the civil aviation legislation as discussed below.

**Aviation sector**

Stakeholders in the aviation sector are concerned that the Bill increases the interaction between space-related activities and civil aviation activities without adequate integration of safety or

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70. Adelaide Law School, Submission, op. cit., p. 3; Inovor Technologies, Submission, op. cit., p. 6.


administrative regimes.\textsuperscript{77} The Australian Airline Pilots’ Association pointed out that the launch of objects into or towards space obviously involves traversing airspace. While the risk profile for a launch can be relatively well controlled, the return of objects from space may be less controlled, particularly if objects essentially have no collision avoidance capacity.\textsuperscript{78}

Stakeholders in the aviation sector were concerned by the absence of any explicit mention of civil aviation legislation or regulation, and of any formal consultative arrangements to facilitate the minimisation of safety risks. There was also a concern that the administrative arrangements and safety regime associated with unmanned high power rockets may become unnecessarily confusing, given that high power rockets are currently regulated by the Civil Aviation Safety Authority (CASA).\textsuperscript{79} The Australia New Zealand Space Law Interest Group noted that by failing to provide certainty, high power rockets may have to meet requirements under both regulatory regimes.\textsuperscript{80}

With increased interaction with civil aviation, the sector had expected more cohesive regulatory reform. For example, one amendment involves the addition of launches from aircraft. The industry sector broadly supported the inclusion of this launch type into the regulatory system.\textsuperscript{81} However, it was also pointed out that, in the event of an accident involving such an aircraft, the accident investigation and any interactions with the Australian Transport Safety Bureau (ATSB) and their existing processes and powers regarding accident investigation are not explicitly incorporated into the Act (noting that it is also not excluded).\textsuperscript{82}

The Australian Airline Pilots’ Association also reiterated the apparent policy gap in defining administrative arrangements for airspace above flight level 600, at approximately 18 kilometres (km) and the altitude of 100 km at which objects are considered to have been launched into space. A proposal for a new subordinate instrument covering this airspace and ‘high altitude activities’ was included in the Legislative Proposals Paper.\textsuperscript{83} The Australian Airline Pilots’ Association was concerned that this space may become administered under the space arrangements, rather than under the existing airspace regulations.\textsuperscript{84}

Financial implications

The Bill provides for applicants for a licence, permit or authorisation under the Act to pay a fee to the Commonwealth, with the relevant fees to be prescribed by subordinate legislation (the Rules). The fees will be set under a cost recovery model and subject to periodic review.\textsuperscript{85} Fees are currently set in the \textit{Space Activities Regulations 2001} (see the ‘Fees’ section of this Digest).

\begin{itemize}
\item \textsuperscript{77} Australian Airline Pilots’ Association, Submission, op. cit., p. 2; International Aerospace Law & Policy Group, Submission, op. cit., p. 5; MA Pozza, Submission to Senate Economics Legislation Committee, \textit{Inquiry into the Space Activities Amendment (Launches and Returns) Bill 2018 [Provisions]}, [Submission no. 20], 24 July 2018, p. 4.
\item \textsuperscript{78} Australian Airline Pilots’ Association, Submission, op. cit., pp. 2, 5.
\item \textsuperscript{79} \textit{Civil Aviation Safety Regulations 1998}, Part 101.
\item \textsuperscript{80} Australia New Zealand Space Law Interest Group, Submission, op. cit., p. 9.
\item \textsuperscript{81} Asia Pacific Aerospace Consultants, Submission, op. cit., p. 4; Hypersonix, Submission, op. cit., p. 1; Australia New Zealand Space Law Interest Group, Submission, op. cit., p. 11; Sitael Australia, Submission to Senate Economics Legislation Committee, \textit{Inquiry into the Space Activities Amendment (Launches and Returns) Bill 2018 [Provisions]}, [Submission no. 2], July 2018, p. 1.
\item \textsuperscript{82} International Aerospace Law & Policy Group, Submission, op. cit., p. 5; Australian Airline Pilots’ Association, Submission, op. cit., p. 3; Australia New Zealand Space Law Interest Group, Submission, op. cit., p. 12.
\item \textsuperscript{83} DIIS, \textit{Legislative proposals paper}, op. cit., p. 16.
\item \textsuperscript{84} Australian Airline Pilots’ Association, Submission, op. cit., p. 4.
\item \textsuperscript{85} \textit{Explanatory Memorandum}, Space Activities Amendment (Launches and Returns) Bill 2018, p. 2.
\end{itemize}
Statement of Compatibility with Human Rights
As required under Part 3 of the Human Rights (Parliamentary Scrutiny) Act 2011 (Cth), the Government has assessed the Bill’s compatibility with the human rights and freedoms recognised or declared in the international instruments listed in section 3 of that Act. The Government considers that the Bill is compatible. 86

Parliamentary Joint Committee on Human Rights
The Parliamentary Joint Committee on Human Rights considers that the Bill does not raise human rights concerns. 87

Key issues and provisions
Restructure of regulated activities
Space activities that are regulated and require approval are described in Part 3 of the Act. Part 3 provides that certain space activities are prohibited unless appropriate approvals are obtained:

- a launch permit or exemption certificate is required to launch a space object from a launch facility 88 in Australia (section 11)
- an overseas launch certificate is required by an Australian national to launch a space object from a launch facility located outside Australia (section 12)
- a launch permit or exemption certificate is required to return an Australian-launched space object to a place in Australia (section 13) 89
- an authorisation under section 43 of the Act is required to return an overseas-launched space object to a place in Australia (section 14) and
- a space licence or exemption certificate is required to operate a launch facility in Australia (section 15).

The Bill proposes to replace the existing provisions with a new structure for regulated activities. 90 These changes are reflected in the proposed objects of the Act in section 3, which is amended by item 4 of Schedule 1 to add regulation of high power rocket launches in Australia, and to ensure a reasonable balance is achieved between removing barriers to participation and encouraging innovation and entrepreneurship in space activities, and the safety and risks of space activities. 91 This item will also repeal the object contained in current paragraph 3(b), which is to provide for the payment of adequate compensation for damage as a result of space activities regulated by the Act. Explicit mention of specified space cooperation agreements in the objects will also be repealed by item 6, although references to UN Space Treaties will be retained (see the ‘International obligations and bilateral agreements’ section of this Digest for further discussion).

Item 61 of Schedule 1 will repeal and replace sections 11 to 15 with new sections 11 to 15A. These sections provide the circumstances in which an offence is committed and detail the penalties that apply to space activities undertaken without appropriate approval. These are discussed below. At

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86. The Statement of Compatibility with Human Rights can be found at pages 3–4 of the Explanatory Memorandum to the Bill.
88. ‘Launch facility’ is defined under section 8 of the Act.
89. ‘Return’ is defined at section 8 to mean ‘return the space object from an area beyond the distance of 100 km above mean sea level to Earth, or attempt to do so’.
90. Item 3 of Schedule 1 to the Bill amends the short title of the Act to the Space (Launches and Returns) Act 2018 to more clearly identify this scope.
91. As a consequence, item 1 amends the long title of the Act to include high power rockets. As discussed in the ‘Major interest groups’ section of this Digest, some stakeholders had hoped for a stronger statement of support for industry development.
the same time, item 63 will repeal and replace Divisions 2 to 6 of Part 3 to reflect the changes in the types of activities and associated approvals (discussed below). In summary, the Bill proposes that:

- an Australian launch permit or authorisation certificate is required to launch a space object from a launch facility in Australia, from an Australian aircraft in flight, or from a foreign aircraft in airspace over Australian territory (proposed section 12)
- an Australian high power rocket permit or authorisation certificate is required to launch a high power rocket in Australia (proposed section 13)
- an overseas payload permit or authorisation certificate is required by an Australian national to launch a space object from a launch facility located outside Australia (proposed section 14)
- a return authorisation, relevant Australian launch permit or authorisation certificate is required to return a space object to a place in Australia (proposed section 15)
- a return authorisation or authorisation certificate is required by an Australian national to return a space object to a place outside Australia (proposed section 15A) and
- a launch facility licence or authorisation certificate is required to operate a launch facility in Australia (proposed section 11).

Additional application criteria and requirements may also be included in subordinate instruments, as is currently the case (see the ‘Rules’ section of this Digest).

Offences and civil penalties
The Act provides offences and civil penalties associated with unauthorised space activities. The current maximum penalties where an individual commits an offence under sections 11 to 14 are:

- imprisonment for ten years
- a fine not exceeding 600 penalty units or
- both.

Item 61 replaces these sections to align with the activity types proposed in the Bill and extends them to the launch of high power rockets from Australia. Under the equivalent offence provisions in proposed sections 12 to 15A, the proposed maximum penalties for an individual are increased to:

- imprisonment for ten years
- a fine of 5,500 penalty units or
- both.

The maximum penalty for a body corporate remains the same at 100,000 penalty units.

Proposed section 11, which relates to the operation of a launch facility in Australia without a licence or authorisation certificate, is a civil penalty provision. A maximum civil penalty of 1,000 penalty units is proposed. This is double the penalty for an individual under the current

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92. As of August 2018, one penalty unit is equal to $210: Crimes Act 1914, section 4AA. This means that the maximum penalty would be $126,000.
94. This means that the maximum penalty would be $1,155,000.
95. This means that the maximum penalty would be $21,000,000.
96. This means that the proposed maximum penalty would be $210,000 for an individual or $1,050,000 for a body corporate: see section 82(5) of the Regulatory Powers (Standard Provisions) Act 2014 which provides that a pecuniary penalty imposed by a court must not be more than five times the penalty specified for a civil penalty provision if the person alleged to have contravened the provision is a body corporate; otherwise, it must not be more than the penalty specified for a civil penalty.
equivalent provision (section 15) which requires a space licence to operate a launch facility in Australia.97

The Explanatory Memorandum states that as ‘more space objects and high power rockets are launched and returned ... the risk of serious damage to a person or property increases’.98 The proposed measures ‘provide a stronger and more suitable framework to deter non-compliance and ... appl[y] penalties that are appropriately commensurate with the seriousness of the offence’.99

The offences and civil penalties associated with breaches of approved conditions are discussed under each type of approval in the ‘Proposed licencing arrangements’ section.

Civil penalty provisions

Part 6 currently details the civil penalty provisions that exist throughout the Act.100 This Part provides that the penalty for contravening a civil penalty provision in the Act is up to 500 penalty units for an individual or 5,000 penalty units for a body corporate.101

Item 138 will repeal and substitute a new Part 6. The Explanatory Memorandum provides the same reasoning for the changes to civil penalties as those given for offences above.102 It also states that the Act will be simplified by calling upon Part 4 of the Regulatory Powers (Standard Provisions) Act 2014 for the enforcement of civil penalties.103 Accordingly, a civil penalty provision may be enforced by obtaining an order for a person to pay a pecuniary penalty for the contravention of the provision. The Bill also proposes that civil penalties will be set out under the relevant provisions, rather than referred to separately elsewhere.

Proposed subsection 81(2) provides that the Minister is an authorised applicant in relation to the civil penalty provisions. This allows the Minister to apply to the Federal Court or the Federal Circuit Court for a civil penalty order requiring a person who is alleged to have contravened a civil penalty provision, to pay the Commonwealth a pecuniary penalty.104 The authorised applicant must make the application within six years of the alleged contravention.105 This is the same as the provisions currently in the Act, which provide that the Minister must commence any civil proceedings within six years of the alleged contravention.106
Proposed licencing arrangements

Launch facilities
A space licence is currently required to operate a launch facility in Australia.\textsuperscript{107} The space licence covers a particular launch facility, a particular type of launch vehicle and particular flight paths.\textsuperscript{108} Before granting a space licence, the Minister must be satisfied of a number of matters, including that the applicant is competent to operate the launch facility and the relevant type of launch vehicle.\textsuperscript{109}

The Bill proposes to replace space licences with ‘launch facility licences’, with broadly similar provisions contained in \textit{proposed sections 18 to 27}. The Minister must be satisfied the person applying for the launch facility licence is competent to operate the launch facility,\textsuperscript{110} without explicit consideration of the potential launch vehicle as currently required for the space licence.\textsuperscript{111}

Section 25A currently provides that an annual review may be conducted of a space licence to monitor compliance by the licence holder with the Act and the conditions of the licence, or any other reason considered appropriate. No equivalent provisions for annual review of launch facilities licences is provided for under the proposed amendments, which also remove the associated annual licence fee payable by the holder of a space licence under section 59(3A).\textsuperscript{112}

\textbf{Proposed section 21} provides for a civil penalty of 1,000 penalty units for contravention of a condition of a launch facility licence.\textsuperscript{113}

Australian launch permits
Division 3 of Part 3 of the Act currently provides for launch permits. A launch permit may currently be granted to a person if they also hold a space licence covering the launch facility and the kind of launch vehicle concerned with the proposed launch.\textsuperscript{114}

\textbf{Item 63} of the Bill would repeal and replace the provisions of Division 3 relating to launch permits, which will be renamed ‘Australian launch permits’. \textit{Proposed sections 28 to 37} relate to Australian launch permits. This permit may be granted to authorise the launch, or a particular series of launches, of one or more space objects from a specified launch facility in Australia, a specified Australian aircraft in flight or a specified foreign aircraft in airspace over Australian territory.\textsuperscript{115}

The Bill extends the regulatory framework to include launches from aircraft in flight,\textsuperscript{116} a situation that is not currently entertained under the Act. As a result, \textbf{item 10} inserts a new definition for aircraft into section 8 of the Act. The proposed definition states that an aircraft derives ‘support in the atmosphere from the reactions of the air’. This links with the Kármán line at which the atmosphere is calculated to become too thin to support aeronautical flight. The Kármán line is considered to be at an altitude of 62 miles (approximately 100 kilometres) above sea level.\textsuperscript{117}

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\textsuperscript{107} Space Activities Act, section 15.
\textsuperscript{108} Space Activities Act, section 18.
\textsuperscript{109} Space Activities Act, paragraph 18(a).
\textsuperscript{110} Proposed paragraph 18(a).
\textsuperscript{111} Proposed paragraph 18(a).
\textsuperscript{112} Section 59 will be repealed and replaced by \textbf{item 94} of Schedule 1 to the Bill.
\textsuperscript{113} This means that the maximum penalty would be $210,000 for an individual or $1,050,000 for a body corporate.
\textsuperscript{114} Space Activities Act, paragraph 26(3)(a).
\textsuperscript{115} Proposed subsection 28(1).
\textsuperscript{116} Proposed subsection 28(1).
\textsuperscript{117} Institute of Physics (IOP), ‘\textit{A brief history of space}’, IOP website.
altitude provides the basis for the definition of launch in section 8 of the Act and its proposed amendment in item 24.

The Bill removes any requirement for the applicant of an Australian launch permit to hold a space licence (or the proposed launch facility licence). This implements a proposal from the legislative review. The Bill proposes to retain the link between the payload and the launch vehicle within the Australian launch permit. Payload, as currently defined in section 8, ‘includes a load to be carried for testing purposes or otherwise on a non-profit basis’. Item 36 proposes to remove the definition. The Explanatory Memorandum states that its ordinary meaning is considered appropriate. Its ordinary definition could be taken to mean the load which a vehicle is designed to transport.

The Australia New Zealand Space Law Interest Group suggested that potential duplication in regulatory requirements may still exist for the Australian launch permit that encompasses both the payload and the launch vehicle, rather than having a mechanism that separates the two as occurs in other jurisdictions. As a result, the group is concerned this could result in the launch vehicle operator needing to obtain permission for any associated payloads, which may be independently owned and controlled, or that the payload owner may need to fulfil the same requirements as the launch vehicle operator. Others were unclear on how these arrangements would be regulated and how multiple payloads associated with the same launch would be treated. These concerns also relate to the proposal that a debris mitigation strategy be required for this permit type (see the ‘Debris mitigation strategy’ section of this Digest), however, an applicant may only have direct control over the launcher or the payload but not both.

Breaching a condition of an Australian launch permit is currently an offence with a maximum penalty, in the case of an individual, of ten years imprisonment, a fine of up to 600 penalty units, or both. In the case of a body corporate, the fine may be up to 100,000 penalty units. Proposed section 31 will increase the maximum financial penalty for an individual to 5,500 penalty units. The imprisonment period, and the financial penalty for a body corporate, will remain the same.

Proposed maximum civil penalties for individuals for breaching a permit condition are increased from 500 penalty units to 1,000 penalty units.

118. Paragraph 26(3)(a) currently requires that a person must hold a space licence covering the launch facility and the kind of launch vehicle concerned in order to be granted a launch permit.
119. DIIS, Legislative proposals paper, op. cit., p. 11.
120. Explanatory Memorandum, Space Activities Amendment (Launches and Returns) Bill 2018, p. 9. Item 28 also repeals the definition of a launch vehicle for the same reason.
121. For example, see Macquarie Dictionary, Payload, Macquarie Dictionary website. In the ‘astronautics’ context, it also defines payload as ‘the load carried in a rocket or satellite to obtain the results for which the vehicle has been launched’.
122. Australia New Zealand Space Law Interest Group, Submission, op. cit., p. 11.
123. Ibid.
124. Adelaide Law School, Submission, op. cit., p. 3.
127. This means that the maximum penalty would be $126,000. See Space Activities Act, section 30.
128. Paragraph 30(2)(c). This means that the maximum penalty would be $21,000,000.
129. This means that the maximum penalty would be $210,000.
130. This means that the maximum penalty would increase from $105,000 to $210,000 for an individual. As the pecuniary penalty for body corporates must be no more than five times the pecuniary penalty specified for the civil penalty provision, the penalty for body corporates will remain the same (5,000 penalty units).
Australian high power rocket permits

This is a new category of regulated activity that will require approval before launch in Australia.131 Item 20 amends section 8 of the Act to insert a definition of a high power rocket. It proposes that the definition be prescribed by the Rules. The Explanatory Memorandum states that this will provide flexibility for the definition to be more readily updated, if required, in response to any future changes in this type of technology.132 Many stakeholders noted that it is difficult to analyse the amendments in the absence of such definition (see the ‘Major interest groups’ section of this Digest).

Proposed sections 38 to 46A (as inserted by item 63) contain provisions for this permit type. The Explanatory Memorandum states that inclusion of this permit type ‘recognises the evolving nature of space technologies and provides a regulatory framework for the safe launching and return of these rockets’.133

This proposal may apply to rockets such as sounding (or geophysical) rockets that ‘do not put satellites into orbit, but carry packages of scientific instruments into the fringes of space, before falling back to Earth’.134 Historically a number of these rockets have been capable of carrying payloads beyond an altitude of 100 km, with one quoted to be capable of reaching 270 km.135 For context, a low-Earth orbit may be considered to be at an altitude around 200–1,000 km, while a geostationary orbit (where a satellite can travel at a speed equivalent to Earth’s rotation) is at an altitude of approximately 35,800 km.136

The launch of a high power rocket is proposed to mean the launch of the rocket into an area that is not beyond 100 km above mean sea level.137

Some stakeholders have questioned how these amendments will interact with the existing regulation of high power rockets (see the ‘Major interest groups’ section of this Digest) under the Civil Aviation Safety Regulations 1998, which define a high power rocket to mean:

a rocket that is not a model rocket, and, to avoid doubt, includes:

(a) a sounding rocket; and

(b) a sub-orbital rocket; and

(c) a launch vehicle (within the meaning given by the Space Activities Act 1998).138

The provisions for the Australian high power rocket permit are largely modelled on requirements for the Australian launch permit but with some differences. While the Australian launch permit may authorise the launch and the return of space objects,139 the Australian high power rocket permit may authorise the launch of a high power rocket, but return of the high power rocket does not appear to be explicitly mentioned. This may be covered under the timeframe of proposed paragraph 39(1)(a), which requires that the high power rocket permit must specify when it comes
into force and the period for which it remains in force. Otherwise, proposed subsection 39(2) allows the permit to specify that the period for which the permit remains in force ends on the occurrence of a particular event. The Rules may also describe how to determine when this type of event occurs, which could potentially relate to the return of the rocket.

Where an Australian launch permit relates to a launch facility in Australia, the Minister must not vary the permit in a way that changes the location of the launch facility. There is no equivalent requirement for the Minister to not change the launch facility or place if varying an Australia high power rocket permit.

The Australian launch permit and return authorisations will require that the space object must not be or contain a nuclear weapon or a weapon of mass destruction of any other kind, or contain a nuclear power source unless approved by the Minister. There are no similar explicit requirements regarding nuclear weapons, weapons of mass destruction, or nuclear power sources relating to the Australian high power rocket permit.

While this permit covers the launch of high power rockets in Australia, the Adelaide Law School submission has questioned the licencing requirements that would apply to an Australian seeking to launch a high power rocket from an overseas launch facility.

Proposed subsection 41(1) provides the circumstance in which an offence is committed relating to the breach of permit conditions and the relevant penalties. These penalties, and the civil penalty provision in proposed subsection 41(2), are as described in the 'Launch facilities' section of this Digest.

Overseas payload permits

Division 4 of Part 3 of the Act currently contains provisions relating to overseas launch certificates. An overseas launch certificate is required if an Australian national will be a responsible party for the launch. Under section 35, the certificate currently authorises the launch of a particular space object, or series of launches, from a specified launch facility outside Australia using a specified type of launch vehicle. The certificate may be transferred to another person under certain circumstances but it must continue to cover the same space object or objects, launch facility and type of launch vehicle. Under section 40, application can be made to vary the certificate, however, not in a way that changes the location of the launch facility.

Under the Bill, overseas launch certificates are renamed ‘overseas payload permits’ and the relevant provisions are set out in proposed Division 5 of Part 3. That Division retains the requirements for transfer of an overseas payload permit, however, there is no requirement to not change the location of the launch facility in relation to applications to vary the permit.

An application for an overseas payload permit will also require a strategy for debris mitigation (see the ‘Debris mitigation strategy’ section of this Digest).

140. Proposed subsection 35(3), and current subsection 33(3).
141. Proposed section 45.
142. Proposed paragraphs 30(b), 30(c) and 46L(2)(d).
143. Adelaide Law School, Submission, op. cit., p. 3.
144. Space Activities Act, sections 35 to 41.
145. Space Activities Act, section 12.
146. Space Activities Act, section 38.
147. Space Activities Act, subsection 40(3).
149. Proposed section 46H.
Breaching a condition of an overseas payload permit is associated with a civil penalty of 1,000 penalty units.¹⁵⁰

**Return authorisations**

Division 5 of Part 3 of the Act currently provides for the authorisation of the return of overseas-launched space objects to Australia.¹⁵¹ These are currently also known as ‘Section 43 authorisations’. Under the Bill, these will be renamed as ‘return authorisations’.

Paragraph 42(b) provides that this Division applies if the space object is proposed to be returned to an area or place within Australia. These parameters will be expanded under the proposed amendments and encompass a greater variety of returns. **Proposed paragraph 46L(1)(a)** will allow for the return of a space object to a specified place or area in Australia or outside Australia. In addition, there is no condition that the space object has been launched, or proposed to be launched, from a launch facility outside Australia, as currently exists under subsection 42(a).

**Proposed subsection 46M(1)** provides the circumstances in which an offence is committed where a return is conducted in a way likely to cause substantial harm to people or property, it contains a nuclear weapon or weapon of mass destruction, it contains an unauthorised nuclear power source, or the insurance/financial requirements are not satisfied. The relevant penalties, and the civil penalty provisions in **proposed subsection 46M(2)** are as described in the ‘Launch facilities’ section of this Digest. Equivalent civil penalty provisions are also proposed for other contraventions of conditions of the return authorisation.¹⁵²

**Authorisation certificates**

Under section 46 of the Act, the Minister may also grant exemption certificates which cover specified conduct that might otherwise be prohibited under section 11, 13 or 15 of the Act. These sections relate to launches of space objects in Australia, returns to Australia of Australian-launched space objects, and operation of a launch facility in Australia, respectively.

This Bill expands the list of circumstances in which an exemption may be issued. Under **proposed sections 46U to 46Y**, the Minister may grant ‘authorisation certificates’ (as they are proposed to be known) to cover specified conduct that might otherwise be prohibited under section 11, 12, 13, 14, 15 or 15A. This is the full range of activities proposed for regulation under Division 1 of Part 3.¹⁵³ This ability to grant authorisation certificates in a broader range of circumstances will help to achieve the government’s aim to ‘create a more flexible regulatory environment to make it easier ... to tap into global supply chains and access the benefits on offer for all Australians’.¹⁵⁴

The Rules can set out matters to which the Minister must consider in deciding whether to issue an authorisation certificate.¹⁵⁵ A copy of any certificate must be tabled in each House of the Parliament within seven sitting days of issuing the certificate.¹⁵⁶

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¹⁵⁰. **Proposed section 46D**. This means that the maximum penalty would be $210,000 for an individual. It is a proposed increase from 500 penalty units, as discussed in the ‘Civil penalty provisions’ section of this Digest. The penalty for body corporates will remain the same (5,000 penalty units).

¹⁵¹. **Space Activities Act**, sections 42 to 45C.

¹⁵². **Proposed subsection 46N**.

¹⁵³. As described in the ‘Restructure of regulated activities’ section of this Digest.


¹⁵⁵. **Proposed subsection 46U(2)**, as is currently required for an exemption certificate under section 46(2), but with the matters set out in regulations, rather than rules.

¹⁵⁶. **Proposed subsection 46U(4)**, as is currently required for an exemption certificate under section 46(3).
Breaching a condition of an authorisation certificate is associated with a civil penalty of 1,000 penalty units.\textsuperscript{157}

**Rules**

Subsection 110(1) of the Act currently allows the Governor-General to make regulations prescribing matters that are required or permitted by the Act to be prescribed, or that are necessary or convenient for carrying out or giving effect to the Act. Item 187 of Schedule 1 to the Bill proposes to repeal and replace section 110 and will instead allow the Minister, by disallowable legislative instrument, to make rules on a similar basis. The Explanatory Memorandum states that the commencement of the Act is delayed to ‘provide time for the subordinate legislation to be drafted thereby aligning commencement of the full regulatory package’.\textsuperscript{158}

As discussed in the ‘Major interest groups’ section of this Digest, many stakeholders have noted that the practical effects of the amendments proposed in the Bill are difficult to assess as they relate to details that are expected to be contained in the Rules.

**Fees**

Section 59, which provides for the payment of fees, will be updated to reflect the proposed licencing regime.\textsuperscript{159} Currently, the Space Activities Regulations may set the fee amount or a way of working out the fee; the Bill proposes this be retained in the Rules.\textsuperscript{160}

Subsection 59(3A) provides that space licence holders must pay any annual licence fee as set in the Regulations. Subsection 59(5) allows for the Regulations to set a fee for any person who inspects the Register. As discussed in the relevant sections, the space licence and arrangements around the Register are being modified, and the provision to charge fees in these circumstances is therefore being removed.

The Regulations state that the various application fees must be paid when the application is made, as allowed under subsection 59(8) which provides that the Regulations may specify the time of payment of a fee.\textsuperscript{161} Proposed subsection 59(4) provides that the Rules may specify the time for payment of a fee, and under proposed subsection 59(5), the Rules may provide that the payment of the launch facility licence application fee can be made in instalments.

Proposed subsections 59(7) and (8) will provide explicit direction in the Act that fees that are unpaid after they are due will result in no decision being made on the application until the fee is paid. Regulation 9.07 of the Space Activities Regulations currently states that an unpaid fee is a debt to the Commonwealth and may be recovered in a court of competent jurisdiction. Proposed subsection 59(8) will incorporate this into the Act.

**Approved scientific or educational organisations**

In some circumstances, under sections 8A to 8C, the Minister is able to declare a scientific or educational organisation as an approved organisation for the purposes of the Act.\textsuperscript{162} Section 8B

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\textsuperscript{157} Proposed section 46W. This means that the maximum penalty would be $210,000 for an individual. This is a proposed increase from the current penalty of 500 penalty units for breaching a condition of an exemption certificate (see Space Activities Act, paragraphs 80(fa) and 81(3)(b)), as discussed in the ‘Civil penalty provisions’ section of this Digest). The penalty for body corporates will remain the same (5,000 penalty units).

\textsuperscript{158} Explanatory Memorandum, Space Activities Amendment (Launches and Returns) Bill 2018, p. 5.

\textsuperscript{159} Item 94.

\textsuperscript{160} Space Activities Act, subsection 59(6). Proposed subsection 59(2).

\textsuperscript{161} See subregulations 9.01(2), 9.02(2), 9.03(2), 9.04(2) and 9.06(2) of the Space Activities Regulations 2001.

\textsuperscript{162} Space Activities Act, sections 8A to 8C.
requires guidelines, by legislative instrument, to be developed to provide guidance on such declarations. These are contained in the Space Activities (Approved Scientific or Educational Organisations) Guidelines 2015. Such declared organisations are charged different fees under subsection 59(6A) as determined in the Space Activities Regulations. Under the Regulations, and as summarised in the Legislative Proposals Paper, fees for approved scientific or educational organisations are currently one percent of the general fees.  

Item 54 repeals sections 8A to 8C. The Explanatory Memorandum states that these sections are repealed as a consequence of the broader discretion provided for the Minister to waive fees in item 94. This item replaces section 59 dealing with fees and proposes subsection 59(6) that will enable the Minister to wholly or partly waive a fee. The Explanatory Memorandum states that this discretion will allow the Minister to consider applications from a range of organisations (including scientific, educational, not-for-profit groups and small businesses) where the capacity to pay the prescribed fee may be limited. However, subsection 59(9) currently also provides that the Regulations may prescribe circumstances in which the Minister may wholly or partly waive fees.

**Debris mitigation strategy**

The launch of objects into space will require a debris mitigation strategy under the proposed amendments. Application for an Australian launch permit or an overseas payload permit will require a strategy for debris mitigation. The matters that must be addressed in the strategy will be prescribed by the Rules for this purpose. There are currently no requirements relating to debris mitigation in the Act or the Regulations.

This reflects Professor Freeland’s conclusion that it was:

> ... consistent with the approach taken in other jurisdictions to consider the inclusion within the regulatory framework of the Act of some form of debris mitigation / deorbiting requirement that takes into account internationally recognised guidelines, particularly for small satellite operators.

Professor Freeland’s report contains discussion of these requirements in Austria, the United Kingdom, the United States and New Zealand, in addition to the international context and UN Space Debris Mitigation Guidelines. He states that while Australia has not adopted any national mechanism to fully implement these guidelines into legislation, the Government committed to adhere to them in Australia’s Satellite Utilisation Policy. The Legislative Proposals Paper proposed that a high level statement that commits applicants to debris mitigation and regard to the space environment should be considered, with details on how this should be achieved to be contained in a subordinate instrument and/or guidance material.

As noted in the ‘Major interest group’ section of this Digest, there is broad support for the introduction of requirements for debris mitigation in the space environment. Some stakeholders raised concerns in relation to how the requirement for a debris mitigation strategy will apply to payloads compared to the launch vehicle, particularly in situations where these two elements are

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163. DIIS, Legislative proposals paper, p. 23. See paragraphs 9.01(1)(b), 9.02(1)(b), 9.03(1)(b), 9.04(1)(b), 9.05(1)(b) and 9.06(1)(b) of the Space Activities Regulations 2001. For example, the application fee for a space licence is $3,000 for an approved scientific or educational organisation compared with a standard fee of $300,000.

164. Explanatory Memorandum, Space Activities Amendment (Launches and Returns) Bill 2018, p. 10.

165. Ibid., p. 23.

166. Proposed subsections 34(2) and 46G(2), respectively.

167. Freeland, Analysis report, op. cit., p. 95; for the context of this report, see the ‘Background’ section of this Digest.


not controlled by the same person, and in relation to the differing elements that are covered by the overseas payload permit compared to the Australian launch permit (which is proposed to cover both the payload and the launch vehicle).171

**Insurance/financial requirements**

Sections 47 to 49 set out the insurance and financial requirements for the holder of a launch permit, overseas launch certificate or section 43 authorisation, that cover a launch or return. This will be updated to reflect the proposed licencing regime.172

The total insurance required for each launch or return is set under subsection 48(3). This is currently the lesser of $750 million or the amount of the maximum probable loss that may be incurred or as calculated by another method set out in the Regulations. The Bill proposes to repeal and replace this subsection with **proposed subsection 48(4)**, which will set the total amount of insurance for each launch or return to be the lesser of an amount specified in the Rules, or the amount as calculated by a method that is set out in the Rules.173 However, under **proposed paragraph 48(4)(a)**, the amount specified in the Rules must not exceed $100 million. As the total insurance required will be the smaller of these amounts, this effectively sets $100 million as the maximum amount of insurance that may be required. The Explanatory Memorandum states that this reduction is consistent with international standards and is balanced by new measures that provide a stronger framework to deter non-compliance.174 While noting the intent of the proposed insurance changes, one stakeholder is concerned that the insurance requirements for high power rockets may potentially increase five-fold.175

**Launch Safety Officer**

The Bill extends the role of the **Launch Safety Officer** and moves some requirements currently contained in the Space Activities Regulations into the Act. Section 50 of the Act provides that a Launch Safety Officer must be appointed for each licensed launch facility, while sections 51 and 52 set out the functions and powers of the Launch Safety Officer. **Item 72** repeals and replaces sections 50 and 51. Under **proposed section 50**, a Launch Safety Officer must be appointed for a launch covered by an Australian launch permit, or for a return covered by an Australian launch permit or a return authorisation. The functions and powers of the Launch Safety Officer are also updated to reflect this proposal.176

The proposed functions of the Launch Safety Officer are to ensure, with respect to a launch or return, that appropriate notice is given, that no person or property is endangered, and to monitor compliance with the Act and the conditions of the permit or authorisation.177 The International Aerospace Law & Policy Group has proposed that the function of the officer to ensure the relevant level of safety should extend to requirements under all legislation, including civil aviation legislation, and not only compliance under the Act.178

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172. Items 65 and 71.
173. See item 71 of Schedule 1 of the Bill.
176. See items 72–82 of Schedule 1 of the Bill. **Item 27** also updates the definition of the **Launch Safety Officer** in section 8 of the Act to reflect the proposed change.
177. **Proposed section 51**.
Item 82 inserts proposed subsection 52(6), which will provide for Ministerial oversight of the operations of the Launch Safety Officer. In particular, the Launch Safety Officer must provide the Minister with a copy of any written directions the Launch Safety Officer gives about the launch, proposed launch, or return of a space object that are considered necessary to avoid any danger to persons or property, including directions to stop the launch or return or to destroy the space object (including before it is launched). The Explanatory Memorandum states that this will ensure the Minister is fully informed of all actions undertaken by the Launch Safety Officer and can respond where necessary. Regulation 8.02(2)(b) of the Space Activities Regulations currently contains a similar requirement, providing that the Launch Safety Officer must provide a copy of any such direction given under paragraph 52(2)(c) to the Minister within ten working days.

In line with other amendments that enable the launch of space objects from aircraft, the proposed powers of the Launch Safety Officer are amended to enable inspection of the aircraft and space object in the aircraft if it is in Australia, and seize powers in line with existing powers in emergency situations.

The powers of the Launch Safety Officer enable the officer, with the consent of the holder of the relevant space licence or other authorised person, to enter and inspect the launch facility and any space object at the facility. Proposed paragraph 52(2)(a) provides that the Launch Safety Officer may enter and inspect a launch facility in Australia with the consent of the holder of the Australian launch permit, or other authorised person. They may also inspect and test any other equipment at the facility. There appears to be no provision requiring the holder of a launch facility licence to provide authority for entry, inspection or testing within their facility in relation to the Launch Safety Officer undertaking these duties. However, such a condition could be prescribed under the Rules under proposed paragraph 20(b).

**Accidents and liability for damage**

Part 4 of the Act covers liability arrangements for damage by space objects. The responsible party for the launch or return of a space object is liable to pay compensation to a third party for any damage the object causes. The Bill will amend these requirements to extend liability to an object launched from an Australian aircraft in flight or from a foreign aircraft in airspace over Australian territory, in line with the proposed inclusion of this type of launch elsewhere in the Act. In relation to damage caused due to the return of an object to a place in Australia, amendments will expand this to a place or area in Australia. The Explanatory Memorandum states that this will allow liability to apply to the area to which an object is to return, as well as to the specified place.

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179. These directions are made under proposed paragraphs 52(2)(c) and (d), at item 77. Note that it is an offence to fail to comply with a direction given by the Launch Safety Officer: see section 53, as amended by item 83 of Schedule 1 of the Bill.
180. Explanatory Memorandum, Space Activities Amendment (Launches and Returns) Bill 2018, p. 22.
181. Proposed subsection 52(3) will also enable the Launch Safety Officer to require written notice be provided that details the action taken in response to directions given under paragraph 52(2)(c) or (d). This is similar to Regulation 8.03, which currently provides that a person must record the action taken or proposed to be taken, in response to a direction by the Launch Safety Officer.
182. Proposed amendments to Space Activities Act, sections 52 and 56, at items 75, 79, 86 and 88 to 90 of Schedule 1 to the Bill.
183. Space Activities Act, subsection 52(2).
185. Space Activities Act, subsection 67(1).
186. See proposed subsection 28(1).
187. Proposed paragraph 63(2)(a) and 63(2A)(b).
The proposals to include launches from aircraft and the launch of high power rockets are integrated into Part 7 of the Act, which relates to the investigation of accidents. Under subsection 88(1), if an accident occurs, the Minister must appoint a person as the investigator of the accident. Item 151 amends this subsection to clarify that this applies to accidents involving a space object, noting that an accident is already defined under the Act to mean where a person dies or suffers serious injury as a result of the operation of the space object, or if the space object is destroyed or seriously damaged or causes damage to other property. Item 152 amends section 88 to insert similar provisions for accidents involving high power rockets. However, the Minister has discretion to not appoint an Investigator if the high power rocket is destroyed and there is no serious injury or death caused by the accident.

As discussed earlier in this Digest, stakeholders have proposed that consideration be given to linking the investigation powers with those available to the Australian Transport Safety Bureau (ATSB), given the potential for overlapping scope with the ATSB in the event of any accident. The Australian Airline Pilots’ Association also consider that the Act should recognise the role of the ATSB in aviation safety and to ensure that the ATSB will always be able to fulfil its responsibilities. This may be particularly relevant to any accident involving launch from an aircraft or other mobile launch facility that is proposed in the Bill.

Under section 65 of the Act, the Regulations may make provision in relation to the waiver of some or all rights of persons connected with a launch or return (and their employees, contractors and subcontractors) to seek compensation for damage to which Part 4 of the Act applies. The current Regulations do not make such a provision. Item 115 repeals this section as, according to the Explanatory Memorandum, it has proven unnecessary and its removal will simplify the Act.

Section 72 provides that the Federal Court has jurisdiction in relation to actions for compensation for damage covered by the Act. Items 124 and 125 amend the Act so that both the Federal Circuit Court and the Federal Court will have jurisdiction.

Item 129 of Schedule 1 proposes to insert a new Part 4A into the Act that will cover liability for damage caused by the launch of a high power rocket from a facility or place in Australia. While Part 4 applies to damage caused by a space object that happens on Earth, in the air or in space, under proposed paragraph 75B(2)(a), Part 4A would only apply where the damage caused by a high power rocket happens on Earth or in the air (but not in space). While the definition of a high power rocket has not yet been proposed and will be included in the Rules, the launch of a high power rocket is defined to mean the launch of the rocket into an area that is not beyond 100 km above mean sea level. It is not clear how these provisions would apply if a rocket authorised under an Australian high power rocket permit was to exceed an altitude of 100 km and cause damage.

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189. Space Activities Act, section 85. The definition of accident will also be amended by items 144–147, which includes an extension of the definition to include high power rockets.

190. Proposed subsection 88(18).


192. Australian Airline Pilots’ Association, Submission, op. cit., p. 3.


195. Item 24 of Schedule 1 to the Bill.
The liability period for the launch of a space object is defined in section 8 of the Act as 30 days that begins when the launch takes place, or a period specified in the Regulations. For the return of a space object, the liability period begins when the re-entry manoeuvre is begun and ends when the object comes to rest on Earth, or a period specified in the Regulations. The liability provisions for space objects, and provisions for the investigation of accidents,196 only apply when damage is caused during the liability period.197 **Item 31** will insert a similar definition for the liability period relating to the launch of a high power rocket: that is, a period of 30 days beginning when the launch takes place, or as specified in the Rules. Some stakeholders have noted that while the Act does not contemplate the continued operation or presence of space objects in orbit, Australia remains liable while a space object is in orbit, which may extend beyond the specified 30 days.198

**International obligations and bilateral agreements**

Implementation of certain obligations as a signatory to the five UN Space Treaties remains an object of the Act. The text of the UN Space Treaties is currently included in Schedules 1 to 5 of the Act. **Item 188** repeals these Schedules, with the five treaties to remain part of the Act by reference rather than inclusion as Schedules. The Explanatory Memorandum states that these documents do not need to be annexed to the Act as they can be readily accessed online.199

The Act also implements the *Agreement between the Government of Australia and the Government of the Russian Federation on Cooperation in the Field of the Exploration and Use Of Outer Space for Peaceful Purposes* (Part 5A and as included in Schedule 6).200 **Item 6** removes explicit mention of Australia’s obligations under specified space cooperation agreements from the Objects of the Act and **item 137** repeals Part 5A of the Act. The Explanatory Memorandum states that this is not intended to reduce or remove any obligations.201 **Item 188** repeals Schedule 6, which is the text of the agreement. This implements Option 19 of Professor Freeland’s report which suggested an amendment to ‘[d]elete references to the ‘intergovernmental agreement with Russia’ in the Act, dependent on whether the instrument continues to be of relevance’.202 No publically available submissions objected to the removal of the agreement from the Act, with one submission to the regulatory review describing the agreement as ‘defunct’.203

Australia is a signatory to the 1944 *Convention on International Civil Aviation* (the Chicago Convention).204 The Chicago Convention is given effect in Australia through the *Air Navigation Act 1920*. Article 1 of the Chicago Convention provides that ‘contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory’. As discussed by Professor Freeland:

> The International Court of Justice has concluded that this characteristic of air space also represents customary international law. As a consequence, civil and commercial aircraft only have certain limited

196. See Space Activities Act, section 84.
197. See Space Activities Act, paragraph 63(1)(b).
198. Australia New Zealand Space Law Interest Group, Submission, op. cit., p. 12; Adelaide Law School, Submission, op. cit., p. 3.
199. Explanatory Memorandum, Space Activities Amendment (Launches and Returns) Bill 2018, p. 32.
200. Further information on the intergovernmental agreement with Russia can be found in the ‘Background’ section of this Digest.
201. Explanatory Memorandum, Space Activities Amendment (Launches and Returns) Bill 2018, pp. 6, 27.
rights to enter the air space of another State, in contrast to the freedom principle relating to outer space.\textsuperscript{205}

The \textit{Space Activities Act} currently contains no mention of the Chicago Convention or associated Annexes. Item 183 proposes to add this convention into section 108 which deals with severability.\textsuperscript{206} As a result, subsection 108(2) would provide that, without limiting its effect apart from section 108, the amended Act would have the effect it would have if its operation were expressly confined to giving effect to the Chicago Convention, along with the UN Space Treaties and any specified space cooperation agreements, matters external to Australia and matters of international concern.\textsuperscript{207}

Some submissions to the Economics Committee inquiry noted this proposal, but believe that greater reference and integration with civil aviation regulations would be desirable.\textsuperscript{208}

\textbf{Other provisions}

The Act (at section 8) defines an \textit{Australian national} as an Australian citizen, a body incorporated by or under a law of the Commonwealth, of a State or of a Territory, or the Commonwealth, a State or a Territory. Item 13 expands the definition of \textit{Australian national} to include Australian residents.

Item 14 inserts a definition for \textit{Australian territory} and item 8 inserts proposed section 6A to explicitly provide that the Act applies both within and outside Australia.

\textbf{Publication of information}

Section 62 requires the Minister to publish a notice in the \textit{Gazette} for any decision by the Minister to vary, revoke, suspend, reinstate or transfer a licence, permit, certificate or authorisation. Item 107 repeals and replaces this section and proposes that the Minister may publish notices when licences, permits, authorisations and certificates are granted, varied, revoked, suspended or transferred. Proposed subsection 62(2) allows this notice to include the name of an individual if the decision relates to an individual. Such notices would be published on the Department’s website, rather than in the \textit{Gazette}.

Item 136 repeals sections 78 and 79 that allow the Minister to keep the Register of Space Objects on a computer and available for public inspection by notification in the \textit{Gazette}. Proposed subsection 76(5) requires this Register be publically available on the Department’s website.\textsuperscript{209}

\textbf{Nuclear power sources and fissionable material}

Currently, under the standard conditions for a launch permit and authorisation of return of overseas-launched space objects, a space object or objects must not contain any fissionable material unless approved by the Minister.\textsuperscript{210} This Bill proposes that these provisions be amended

\textsuperscript{205} S Freeland, ‘For better or for worse? The use of ‘soft law’ in the international legal regulation of outer space’, \textit{Annals of Air and Space Law}, vol. 36, p. 413.

\textsuperscript{206} Severability provisions are designed to overcome potential constitutional issues in the event that proposed provisions or other aspects of the Act are found to be unsupported by a constitutional head of power: see further: Office of Parliamentary Counsel, \textit{Drafting direction no. 3.1: constitutional law issues}, reissued January 2017, pp. 9–11.

\textsuperscript{207} The only specified space cooperation agreement currently in the Act is proposed to be removed through this Bill. Subsection 108(2)(aa) relating to severability and specified space cooperation agreements is retained.


\textsuperscript{209} See item 134.

\textsuperscript{210} \textit{Space Activities Act}, paragraph 29(c) and subparagraph 44(1)(c), respectively.
to refer to a ‘nuclear power source’ for Australian launch and return authorisations, under proposed paragraph 30(c), subparagraph 46M(1)(b)(iii) and paragraph 46M(2)(c).

The Legislative Proposals Paper states that consideration should be given to a requirement for both fissionable material and nuclear power sources to be approved by the Minister.\footnote{211} This proposal raised no objections and was generally supported by stakeholders,\footnote{212} with some believing that it was already covered by the Act.\footnote{213} The Explanatory Memorandum provides no guidance on the proposal to remove the ‘fissionable material’ terminology.

Provisions in the Act relating to fissionable material were the result of Opposition amendments\footnote{214} to the Space Activities Bill 1998 in committee of the whole that were accepted by the Coalition Government.\footnote{215} It appears that the intent of the original inclusion of these requirements arose from safety concerns relating to the consequences and fate of radioactive materials in the event of an accident during the launch or return of a space object:

> We accept the fact that in some areas of technology, for quite peaceful purposes, there may well be a case for the energy source within a satellite, for a long deep space probe, to be powered by nuclear material—fissile material. That would be an example. There may even be a case to say a small nuclear reactor.

... 

> We think that [the United Nations] is the appropriate body to draw up the international regulatory regime dealing with such issues, not only of nuclear weapons in space, but the safety regime and the issue of fissionable material. As I understand it, those treaties [the international space treaties] do not ban fissionable material being used in space launches and space satellites. They have been used, apparently quite safely, over the recent past.\footnote{216}

The absence of a clear definition of what constitutes ‘fissionable material’ could lead to ambiguity when interpreting what does and does not require approval under the Act. ‘Fissionable material’ is a very broad term that means any material that can undergo fission, which in this context would typically be induced or split by a neutron. This extends beyond material that is fissile, which is material that can be split by neutrons in a self-sustaining chain-reaction, such as may be used in a nuclear reactor. The use of ‘fissionable material’ could therefore conceivably encompass unintended materials or scientific applications.\footnote{217}

\footnote{211} DIIS, Legislative proposals paper, op. cit., p. 18.

\footnote{212} Communications Alliance, Submission to the Legislative Proposals Paper, op. cit., p. 9. The CSIRO supported the proposal, as it ‘multiplies the liability’ (see: CSIRO response to DIIS regarding the Reform of the Space Activities Act 1998 and associated framework Legislative Proposals Paper 24 March 2017, 13 April 2017, p. 5).

\footnote{213} Space Industry Association of Australia, Comments on Legislative Proposals Paper for reform of the Space Activities Act, 24 April 2017, p. 11.

\footnote{214} Proposed amendments may be found on the Space Activities Bill 1998 homepage. Amendments proposed by the Australian Democrats that were not supported contained reference to ‘radioactive material’ and toxic material’.


\footnote{217} Relatively commonly used elements such as lead and bismuth can, under extreme conditions, be fissioned and are therefore fissionable, but are not useful as active materials in nuclear power applications (see O Shcherbakov et al., ‘Neutron-induced fission of \(^{238}\)U, \(^{235}\)Th, \(^{232}\)Pu, \(^{207}\)Pb and \(^{209}\)Bi relative to \(^{235}\)U in the energy range 1-200 MeV’, Journal of Nuclear Science and Technology, 39, 2002, pp. 230–233). Some scientific applications involving the study of radiation damage or detection of high energy cosmic radiation by the fission of nuclei (see G Damm, K Thiel & W Herr, ‘Cosmic-ray-induced fission of heavy nuclides: possible influence on apparent 238U-fission track ages of extra-terrestrial samples’, Earth and Planetary Science Letters, 40(3), August 1978, pp. 439–444) and some types of spectroscopy may use very small amounts of fissionable nuclei, for example, in Mössbauer spectroscopy (see Royal Society of Chemistry (RSC), ‘Introduction to Mössbauer Spectroscopy: Part 1’, RSC website, figure 5). Similarly, it may be unclear how a battery based on fissionable material, for example a redox flow battery that stores energy chemically and uses uranium in its active materials, would be treated (see
While the proposed wording of ‘nuclear power source’ is also not explicitly defined in the Bill, it could be taken to mean a ‘device that uses radioisotopes or a nuclear reactor for electrical power generation, heating or propulsion’.[218] To date, many space missions have relied on radioisotope power systems, such as a radioisotope thermoelectric generator (RTG).[219] These generators convert heat, from the natural radioactive decay of their fuel source, into electricity. While these may use fissionable isotopes as fuel, at least one isotope could be used that is not considered fissionable.[220] It could therefore be argued that the RTGs are all nuclear power sources, even when they may not necessarily contain fissionable material.

The United Nations Principles Relevant to the Use of Nuclear Power Sources in Outer Space and the Safety Framework for Nuclear Power Source Applications in Outer Space refer primarily to nuclear power sources.[221] The proposed wording will therefore align the Act with that used in this context by the United Nations. It also appears to more accurately capture the intent of these provisions.

**National security and international relations**

The Minister may approve various space activities after being satisfied of several requirements relevant to each type of licenced activity. One of these requirements relates to national security and foreign policy. The Minister may grant an approval for a space licence, launch permit, overseas launch certificate, or return authorisation for an overseas-launched space object, if the Minister does not consider that, for reasons relevant to Australia’s national security, foreign policy or international obligations, it should not be granted.[222] The Minister can also use these factors to suspend any approved licence, permit, certificate or authorisation.[223] The equivalent considerations under the amendments proposed in item 63 are reasons relevant to the security, defence or international relations of Australia. One submission to the Economics Committee inquiry suggested that ‘international legal obligations’ should also be included as a consideration.[224]

**Transitional provisions**

Item 189 details the transitional provisions for activities that are already approved. Existing approvals for a space licence, launch permit, overseas launch certificate or exemption certificate will continue as if they are a launch facility licence, Australian launch permit, overseas payload permit or authorisation certificate, respectively, under the Space (Launches and Returns) Act 2018. Item 189(4) provides that for an existing section 43 authorisation, the Space Activities Act as in

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220. Radioisotopes that have been used in RTGs include Plutonium-238, Curium-244 (which are both fissionable) and Strontium-90 which is not considered fissionable (see GR Schmidt, TJ Sutliff & LA Dudzinski, ‘Radioisotope power: a key technology for deep space exploration’, in N Singh, ed, Radioisotopes – applications in physical sciences, InTech, 2011, pp. 419–456 and DL Parks, JP Grimm & J Dominick, ‘End of an era and closing the circle – disposal of Strontium-90 radioisotope thermoelectric generators’, WM2009 Conference, 1–5 March 2009, Phoenix, Arizona).

221. See the United Nations Office for Outer Space Affairs (UNOOSA), ‘Nuclear power sources’, UNOOSA website; IAEA, Safety framework for nuclear power sources in outer space, op. cit.

222. Space Activities Act, paragraphs 18(e), 26(3)(g), 35(2)(c) and 43(3)(e), respectively.

223. Space Activities Act, paragraphs 25(1)(b), 34(1)(b), 41(1)(c) and 45C(1)(b), respectively.

224. Pozza, Submission, op. cit., p. 4.
force immediately before the Bill commences, will continue to apply in relation to that authorisation.

**Item 190** details the transitional provisions for applications already made but not yet decided. An application for a space licence, launch permit or overseas launch certificate will be treated as if it were an application for a launch facility licence, Australian launch permit or overseas payload permit, respectively. No transitional provision is made regarding an application made for an exemption certificate. **Subitem 190(4)** provides that for an existing application for a section 43 authorisation, the *Space Activities Act* as in force immediately before the Bill commences, will continue to apply in relation to that application and any resulting authorisation.

**Item 191** allows the Minister to make Rules prescribing matters of a transitional nature relating to the amendments or repeals made by Schedule 1. The Explanatory Memorandum states that this is to ensure a smooth transition to the new arrangements.\(^{225}\)

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\(^{225}\) *Explanatory Memorandum*, *Space Activities Amendment (Launches and Returns) Bill 2018*, p. 32.
Space Activities Amendment (Launches and Returns) Bill 2018

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