MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HIKINA WHAKATUTUKI

Regulatory impact statement

The Outer Space and High-altitude Activities Act 2017 Regulations

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Agency disclosure statement

This regulatory impact statement has been prepared by the Ministry of Business, Innovation and Employment.

It provides an analysis of options for regulations under the Outer Space and High-altitude Activities Act on the following issues:

- The application requirements for licenses and permits, and
- Whether any class of high-altitude vehicle (HAV) should be exempted from the requirements of the regime.

We note that in respect of application requirements, due to the OSHAA Act requiring applications to be made in the prescribed form, there is no option to have no regulations.

We also note that space activities, in particular launches of vehicles and payloads into outer space, are new to New Zealand and, as a result of the fledgling nature of the industry in New Zealand, we only expect a small number of applications in the short-to-medium term. This means the implementation of the regime is likely to evolve over time, which has influenced our approach to the regulations.

We have undertaken some analysis of the extent of HAV activity occurring in New Zealand, but it is difficult to assess whether this accurately reflects the full extent of the activity going on. New Zealand is the only country in the world to introduce a high-altitude vehicle regime. Therefore we have no international comparators to use as a bench mark for the proposed regulations. We have tested the proposed requirements with stakeholders including New Zealand and international space industry participants, HAV operators, and domestic agencies who will be involved in conducting the statutory assessments. We have used their feedback to modify the information requirements and the approach to HAV exemptions.

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Executive summary

1. The Government has put legislation in place to regulate space and high-altitude activities conducted in New Zealand and by New Zealanders overseas. The Outer Space and High-altitude Activities Act (the OSHAA Act) was passed into law on 10 July 2017 and will come into force on 21 December 2017.

2. The objectives of the OSHAA Act are to:

   - facilitate the development of a space industry and provide for its safe and secure operation,
   - implement certain international obligations of New Zealand relating to space activities and space technology, including those found in the Outer Space Treaty,
   - manage any potential or actual liability that may arise from the space industry,
   - establish a system for the regulation of space activities and certain high-altitude activities, and to
   - preserve New Zealand's national security and national interests.

3. To this end, the OSHAA Act provides for six types of licences / permits being (i) launch licences, (ii) payload permits, (iii) overseas launch licences, (iv) overseas payload permits, (v) facility licences and (vi) high-altitude licences. The licensing process will be administered by the Ministry of Business, Innovation and Employment (MBIE).

4. This regulatory impact statement deals with two issues:

   - The application requirements for licenses and permits, and
   - Whether any class of vehicle should be exempted from the high-altitude vehicle (HAV) requirements of the regime.

5. The preferred options for these issues are:

   - A minimum list of application requirements seeking information from applicants on how they meet the threshold tests in the OSHAA Act. This is supported by a power to accept incomplete applications, and the existing power in the OSHAA Act to require additional information to be given post application.
   - A small set of exemptions from the high-altitude aspects of the regime:
     - balloons launched with only the following sondes: radiosondes, ozone sondes, frost point sondes, and/or backscatter sondes, and
     - the payload is used for the sole purpose of measuring any combination of the following atmospheric profiles: pressure, temperature, humidity, wind speed and direction, ozone concentration, water vapour and aerosols (including dust, smoke and volcanic ash)

- balloons launched for the purposes of education by a New Zealand primary or secondary school or a New Zealand tertiary institute for the purposes of education where the payload carried by the balloon can only be used to describe or illustrate the progress of the vehicle and the payload device is an unmodified commercial off-the-shelf product, and
- model rockets launched and operated by members of the New Zealand Rocketry Association (NZRA) from the NZRA launch site at Taupiri.

1 Status quo and problem definition

General background to the OSHAA Act

1. With the advent of Rocket Lab (a United States company with a New Zealand subsidiary) conducting space launches from New Zealand, there is a need to manage various associated risks to New Zealand, including:

- meeting international obligations as set out in international treaties relating to space activities to which New Zealand is party, including liability and insurance,
- meeting obligations under the Technology Safeguards Agreement, a treaty level agreement with the United States for managing the transfer of sensitive technology from the United States to New Zealand,
- managing safety risks that arise from space activities, and
- ensuring that space activities conducted in New Zealand (and by New Zealanders offshore) are consistent with New Zealand's national interests, including national security.

2. Although rockets, their launches and high-altitude vehicles (HAVs) are to some extent regulated by Civil Aviation Act Part 101, New Zealand has no comprehensive regulatory regime designed for space launches. Therefore, there is limited scope to prevent anyone from launching space or high-altitude objects or to manage the operation.

3. The OSHAA Act establishes a regulatory regime to ensure that New Zealand can meet its international obligations and manage the risks associated with space and high-altitude activities.

4. When the OSHAA Act comes into force, licenses and/or permits will be required for the following activities:

- Launching a launch vehicle(e.g. a rocket) into outer space from New Zealand,
- Launching and operating a payload (e.g. a satellite) from New Zealand,
- Launching a HAV from New Zealand (such vehicles operate above controlled air space but do not reach outer space),
- Operating a launch facility in New Zealand, and
- Launching a launch vehicle or payload by a New Zealand national overseas (a requirement of New Zealand's international obligations).

5. MBIE will administer the licensing regime and undertake space policy functions. The Minister for Economic Development will act on advice from MBIE and relevant agencies to determine whether to grant licenses and permits.

6. A number of threshold tests apply to the granting of a license or permit (depending on the provisions of the OSHAA Act), such as:

- Applicants must be technically capable of undertaking the proposed mission
- Applicants must demonstrate how they will manage public safety
- Applicants must demonstrate how they will mitigate orbital debris

- Applicants must be fit to hold a license

7. Despite being satisfied that the statutory tests are met, the Minister may decline to grant a licence or permit for the activity if he/she is not satisfied that the activity is in the national interest. The Minister must decline to grant a licence or permit if the Prime Minister issues a certificate that the proposed activity poses a significant risk to national security.

8. In order to implement the OSHAA Act, regulations are required:

- to set out the requirements for licences and permits, most significantly the information requirements
- to prescribe requirements for orbital debris mitigation plans
- to prescribe requirements for safety cases
- to prescribe the circumstances in which certain vehicles that go into high altitude are not high-altitude vehicles (and hence will not require a licence), and
- to prescribe the form of notices for infringement offences.

Current market dynamics and expected activity

9. The development of a New Zealand-based space launch industry creates opportunities for New Zealand to provide launch services to meet a growing demand for launches, particularly for small satellites and constellations of small satellites. It also creates opportunities for New Zealand-based organisations to design, build and operate their own satellites, and to develop applications for space-based information.

10. At the current time, Rocket Lab is only launch provider operating in New Zealand that will require a launch and launch facility license under the OSHAA Act. Given the lead time necessary to establish a space launch operation, it is unlikely that this position will change in the near future.

11. For payload permits, we anticipate that Rocket Lab will increase its customer base over the first 1-2 years, meaning there will be a fairly consistent flow of payload permit applications. If other launch providers enter the New Zealand market, this flow will increase

12. For HAV licenses, we are aware of three main current users of HAVs (NIWA, the MetService and NASA). We are also aware of some research and educational launches of high-altitude balloons (either by universities, or primary and secondary schools). We expect this sort of activity to increase as technology becomes more accessible and affordable.

13. We are also aware of groups that are involved in educational and recreational rocketry. These activities would not currently fall within the scope of the OSHAA Act because they do not operate above controlled airspace. However, we understand that the New Zealand Rocketry Association has members that are seeking to operate above controlled airspace in the future (although these launches will not be able to reach orbit).

The legislation establishes a proportionate and risk-based approach to licenses

14. The OSHAA Act establishes a licensing and permitting regime to enable New Zealand to authorise and have ongoing supervision of space activities conducted from New Zealand.

15. The design of the regime has been informed by international space law and practice, and by the experiences of other like-minded countries – a number of which are in the process of reviewing their own space laws.

16. Significant thought has gone into ensuring that the OSHAA Act is flexible enough to deal with rapidly evolving technology and market demand. Equal importance has been placed on keeping compliance costs as low as possible. The lesson from overseas experience is that this is necessary to avoid stifling economic and innovation opportunities and to underpin New Zealand's advantage as a location for space activities.

17. The OSHAA Act achieves these objectives by establishing a decision-making framework that is risk-based and proportionate. It avoids unnecessary prescription, for example, by allowing the decision-maker to tailor the conditions of licences and permits to provide a graduated approach to risk-management (rather than a "one-size fits all" approach).

18. The OSHAA Act's regulation-making powers also provide the necessary scope to deal with future technologies and applications. A number of regulation making powers are included in the OSHAA Act. Not all of them must be used initially or will be relevant for every activity – they are built into the legislation to future proof it and to enable a flexible approach to managing risk.

The regulator can take existing foreign licenses into account when considering an application

19. The OSHAA Act enables the Minister to take into account foreign licences for the activity when deciding whether to grant a licence for launches, payloads or launch facilities. This approach has been taken to reduce duplication of costs for applicants and is consistent with a number of other New Zealand regulatory regimes like product safety.

20. International cooperation arrangements with certain foreign regulators will facilitate this aspect of the regime. The ability for foreign licences to be taken into account has influenced the nature of the regulations proposed in this document, particularly the information requirements.

21. We note that there are some issues which New Zealand must consider from its own perspective (like fitness to hold a license, national interest, and national security). We have assessed the marginal impacts of the proposed requirements in New Zealand on top of what applicants will face overseas (e.g. to what extent do the proposals add cost for these applicants by requiring differing or more comprehensive information to be provided with applications). On balance, we consider that the impacts are justified in relation to the benefits of ensuring a safe and secure environment for space activities.

22. The ability to recognise authorisations granted in a foreign jurisdiction reduces the compliance burden on applicants and enables the New Zealand Space Agency to operate effectively from day one of the regime coming into force. As noted above, space activities are a new industry for New Zealand and it will take time to develop the necessary technical capability and expertise required to operate a comprehensive licensing regime.

Key information gaps and assumptions

23. Disruptive technologies are making it easier and more affordable to access space and this is creating opportunities for new participants and new products and services. New Zealand is seeking to facilitate a dynamic and competitive space industry by putting in place a regulatory regime that provides flexibility to accommodate future industry developments and the evolution of international space law, whilst managing risk.

24. Key assumptions in relation to the design of the regime are:

- Overly onerous licensing requirements would impose high compliance costs and would deter foreign payload providers from launching in New Zealand stifling the development of a New Zealand-based space industry. This means any regulatory

burden should be the minimum necessary to meet the objectives of safe, secure and internationally credible space industry. Any costs imposed need to be proportionate to benefits.

- We can rely on best-practice international standards to manage certain risks that arise from space activities, such as orbital debris. These are well understood, acceptable and subject to regular review by technical experts, such as the scientific and technical subcommittee of the United Nations Committee of the Peaceful Uses on Outer Space; and
- The OSHAA Act requires the regulator to be satisfied before granting a launch licence, launch facility licence or (non-aircraft) HAV licence that the applicant has, and will continue to take, all reasonable steps to manage risks to public safety. The information regulations will require a safety case (pursuant to the OSHAA regulation making power) and prescribes the key elements of a safety case. These are couched as high-level requirements to accommodate a range of practices. Our working assumption is that New Zealand's existing domestic law (including the Health and Safety at Work Act 2016) is adequate to manage safety on the ground, but the test in the OSHAA is a broader test. In order for the Minister to be satisfied that the public safety test has been met, we will work with other domestic regulators (including Worksafe) to ensure a shared understanding of the risks and how these are being managed. This is particularly the case where a foreign licence may deal with some aspects of public safety in relation to the launch vehicle but where this may not be sufficient to address all aspects of safety during the operation.

25. Key information gaps relate to:

- The volume of space and high-altitude activities that will need to be managed under the regime, particularly the number and frequency of payload launches;
- The different types of international collaborations that may arise in relation to space activities, including for example collaborations between domestic and foreign universities. The nature of the collaboration will have implications for whether a licence or permit is required for the activity and the identity of the applicant. This will require us to provide clear information and guidance about what activities the regime applies to and to develop strong relationships with industry and universities; and
- There are also information gaps with respect to HAV activities where our knowledge of the different participants, types of HAV activities and HAV development opportunities is limited.

26. These information gaps are not unusual for a new regulatory regime and have informed our judgements about the approach we are taking in respect of the regulations.

Problem definition for application requirements

27. Clauses 8(2), 16(2), 24(2), 32(2), 39(2) and 47(2) of the OSHAA Act require applications for licenses to be made in accordance with prescribed requirements.

28. Clause 88(1) authorises regulations prescribing information to be given in, or in connection with, applications for licences and permits. This which may include, without limitation, requirements for a safety case, an environmental impact assessment and requirements for an orbital debris mitigation plan. Amendments made to clause 9 of the OSHAA Act during Select Committee require the Minister to be satisfied that there is an orbital debris mitigation plan that meets prescribed standards. Without any regulations to stipulate what must be provided with those applications, applicants could not meet this requirement.

29. In addition, the regulator must be able to assess whether an applicant meets the threshold tests for granting a license in the OSHAA Act. Without setting some requirements in regulations, the regulator may find it difficult to get information necessary to assess whether the applicant can meet these tests.

30. An additional consideration is whether the scope, detail and substance of the application requirements meet the objectives of the regime, particularly to grow an internationally competitive space industry. If requirements are too burdensome, this may act as a disincentive to the industry developing by imposing undue compliance costs on applicants.

31. We note that there will be no application fees for licenses initially. This will reduce the overall costs for applicants of applying under the regime.

Size and magnitude of the problem

32. At this stage, the size of these problems are difficult to assess because of the small scale of activity affected by the requirements and the uncertain nature of application volumes. However, as activity ramps up, onerous application requirements have the potential to stifle the development of the space industry and / or add substantively to the costs of operating from New Zealand. For example, anecdotal evidence from discussions with overseas payload operators indicates that the costs associated with seeking professional legal advice to enable them to be satisfied that they are complying with the requirements of a licensing regime can add a significant compliance cost over and above time spent on the application process.

Problem definition for HAV exemptions

33. Developments in technology mean that vehicles that operate at high-altitudes can carry out similar functions as satellites. The high-altitude part of the OSHAA Act enables the government to ensure that high-altitude activities taking place from New Zealand are consistent with our national interests, including national security. It also ensures that technologies that perform similar functions are regulated in a consistent way. New Zealand is one of the first countries to regulate high altitude activities. This means we have not been able to base our regime on international comparators.

34. An HAV is defined broadly in the OSHAA Act as any vehicle capable of operating above the upper limit of controlled airspace. This broad definition of high altitude will mean that some current HAV users – who effectively can operate without restriction now provided they meet the requirements of the Civil Aviation Rules (Part 101) will now require a high-altitude licence. Some existing activity in this area is positive for New Zealand (such as weather and atmospheric monitoring).

35. In order to ensure that the regime is taking a proportionate response to licensing this activity, two aspects were included in the legislation:

- As noted above the approach to licence conditions can be tailored to the level of risk, and
- A power to exempt certain classes of vehicle from the HAV aspects of the regime is included in the OSHAA Act.

36. The problem this Regulatory Impact Statement considers is whether to exempt certain classes of vehicle.

Size and magnitude of the problem

37. The size of the problem is relatively low at the current time in that there are only a handful of HAV operators that we are aware of that would be affected by the regulations. However, the

potential impact on some of these operators could be high as the licensing regime would impose new information and reporting requirements on them.

38. The main users affected are likely to be organisations that routinely use high-altitude balloons for weather and atmospheric monitoring including the MetService, NIWA, and Rocket Lab (who uses balloons to monitor weather conditions prior to a rocket launch). Some universities such as Otago University, Canterbury University and Auckland University of Technology inform us that they also use high-altitude balloons for education purposes to build capacity and encourage deeper understanding of upper atmospheric processes. In addition, NASA operates an annual high-pressure balloon programme from New Zealand as part of their upper atmosphere, climate research and astronomical research programmes. There may be some primary and secondary schools that occasionally launch balloons for teaching purposes.

39. Weather forecast and storm warning information is provided by the MetService under a contract with the Ministry of Transport and constitutes an important public good service for New Zealand. It is important that this service is maintained and not unduly hindered by regulation.

2 Objectives

40. The objectives of the OSHAA Act are to:

- facilitate the development of a space industry and provide for its safe and secure operation
- implement certain international obligations of New Zealand relating to space activities and space technology, including those found in the Outer Space Treaty, 1967
- manage any potential or actual liability that may arise from the space industry
- establish a system for the regulation of space activities and certain high-altitude activities, and
- preserve New Zealand's national security and national interests.

41. The design of the regulations should not hinder these objectives.

42. In addition, the specific objectives we are assessing the options in this Regulatory Impact Statement against are:

For the application requirements

- Enabling the regulator and applicants to efficiently work through the application process and meet the requirements of the regime
- Ensuring the compliance costs of applying for licenses are appropriate, and maintain the international competitiveness of the regime, and
- Enable the license application process to evolve over time as volumes increase and the regulator develops expertise and best practice.

For the issue of high-altitude exemptions

- Managing national interest and national security risks associated with certain high-altitude activities

- Ensure that licensing is not required where this would be disproportionate to the level of risk involved, and
- Reduce license compliance costs for low risk activity as far as possible.

3 Options and impact analysis

Options for application requirements

43. The most significant aspect of the regulations is the information that is required to be submitted in or with an application. We have considered two main approaches to setting these requirements. These have been assessed in terms of how well they achieve the objectives of the OSHAA Act.

Option 1 – Prescribe detailed information requirements

44. Under this option, the regulations would prescribe detailed information requirements that would apply to all applicants for a particular licence or permit, irrespective of their background, technical expertise, the purpose of mission and the type of space technologies used in the operation. Applicants would need to submit all of the information even if it wasn't absolutely necessary to inform an assessment. This is consistent with a prescriptive approach.

45. There are a number of difficulties with adopting such an approach. During the initial consultation phase on the regulations, MBIE received advice from industry participants that overly onerous information requirements would increase compliance costs for the industry and potentially deter operators from undertaking activities in New Zealand. In addition, MBIE received advice that the information requirements should, as far as possible, be modelled on comparable international licensing regimes to reduce the compliance costs on operators whose operations may be governed by an overseas licence as well as a New Zealand licence. In order to better understand overseas licensing requirements, MBIE considered a number of models for the application requirements including the United States, United Kingdom and Australia.

Preferred option – Minimum necessary requirements supported by information gathering powers and guidance for applicants

46. Our preferred option is to require applicants to provide the annexed list of requirements (see Annex 1). The information requirements for licences and permits cover the following matters (the following list is a summary of the types of information required and not an inclusive list):

- Applicant details required for all licences and permits: e.g. name, address, contact details, current nationality, legal form of organisation, details of persons with more than 10% ownership or control interest in the organisation. (This information is principally required to assess national security as well as to provide a key contact for licence and permit applications)

- Information about the proposed mission and purpose, and description of the vehicle(s) and payload(s): This includes as applicable a description of the vehicle and payload capabilities, ground systems used to support the operation, launch facility and overview of protective security (including cyber security) measures or policies in place. (This information is principally to assess national interests and national security)

- Evidence of technical capability and safety including name of key persons relied upon for their technical capability and evidence of qualifications, and the steps the applicant has and will take to manage risks to public safety, and plan for managing orbital debris. (This information is principally required to assess safety)

- Information about previous convictions or offences, and history of mental illness. (This information is principally required to assess fitness to hold a licence), and

- Information about any foreign licences, permits or authorisations for the same or substantially similar activity applied for, granted or declined. (This information is to enable an assessment of whether the licence can be treated as meeting some or all of the requirements of the Act including matters such as safety, technical capability and management of orbital debris.)

47. This list was developed based on best practice from international regimes as above, including extensive discussions with United States regulators, in consultation with a number of government agencies to ensure the information required meets the New Zealand government's needs for risk assessment. The list of information requirements are supported by:

- Guidance published on the ministry's website that details what specific requirements entail (for example, the elements we would expect to see included in an orbital debris mitigation plan), and
- An iterative process for applications where additional information is gathered through s.51 of the OSHAA Act (which reduces the amount of information that has to be provided at the outset where the minimum information requirements are adequate.)

48. Setting minimum requirements in regulations is appropriate in order to keep compliance costs down for the majority of applicants for whom this information will be sufficient to enable the regulator to undertake the assessments. This also forms part of the competitive advantage New Zealand has as a launch State for overseas companies wishing to launch payloads from New Zealand.

Impacts of the preferred option

Assessment against objectives

	Enable efficient application process	**Ensuring compliance costs of applying are not overly onerous**	**Enable the application process to evolve over time**
Option one: Prescribe detailed information requirements	A prescriptive regime is likely to be inefficient and time consuming for applicants, as the information requirements would be set at the same level for all applicants, regardless of the level of complexity of their space	Relative compliance costs from a prescriptive approach may be comparable or higher than competitor regimes instead offering a competitive alternative. In addition, low risk and/or amateur space activities would be unfairly penalised by a prescriptive regime This would act as a deterrent to companies due to high costs relative to their activities, or	Locking in too much detail through regulations during the early stages of establishing a competitive space industry in New Zealand will make it more difficult for New Zealand to apply a flexible and nimble approach to the licencing regime, the cornerstone of New Zealand's competitive advantage

	activities. This would have a negative impact on the development of a space industry in New Zealand	encouraging an interest in space activities in the wider community in New Zealand.	
Preferred option: Prescribe the minimum necessary information requirements	An iterative application procedure ensures an efficient process whereby we seek the minimum information necessary with the ability to fast track applications that are low risk and have already satisfied the information requirements through the provision of a foreign licence. It also enables us to seek additional information that may be required in a targeted way (although we note that this may increase the turnaround time.)	Ensures that compliance costs are in line with international benchmarks for the level of risk. With the exception of HAVs, most of the operators seeking a New Zealand licence or permit will already require a US licence or authorisation from another foreign jurisdiction thus further reducing compliance costs.	A flexible and nimble approach to regulations permits the regime to adapt as our experience and knowledge of the industry grows and to evolve in line with international best practice.

Options for HAV Exemptions

Option one – no exemptions

49. Cabinet agreed to include an exemption making power in the OSHAA Act for vehicles "which undertake certain activities that are not intended to be subject to the high-altitude regime" (EGI 16-MIN-0122) based on the associated level of risk.

50. Officials considered the possibility of not developing an exemption for certain classes of HAVs and instead relying on the ability to adopt a "light-touch" licensing approach for low risk activities, and the ability to tailor licence conditions appropriate to the level of risk. We were also concerned to ensure that any exemption did not inadvertently exempt other activities that should be licenced. We were also proposing not to charge fees so that the only costs

would be those associated with the compliance of seeking a licence. However, the "no exemptions" option would pose a disproportionate compliance cost on low risk HAV operators which would not be consistent with the policy intent.

Preferred option – exemptions for certain low risk HAV activities

51. In order to allow for low risk HAV operations to continue without the need for a HAV licence, the preferred option is to prescribe that the following things are not a high-altitude vehicle or a high-altitude payload for the purposes of the OSHAA Act:

- balloons launched with only the following sondes: radiosondes, ozone sondes, frost point sondes, and/or backscatter sondes, and the payload is used for the sole purpose of measuring any combination of the following atmospheric profiles: pressure, temperature, humidity, wind speed and direction, ozone concentration, water vapour and aerosols (including dust, smoke and volcanic ash)
- balloons launched for the purposes of education by a New Zealand primary or secondary school or a New Zealand tertiary institute for the purposes of education where the payload carried by the balloon can only be used to describe or illustrate the progress of the vehicle and the payload device is an unmodified commercial off-the-shelf product, and
- model rockets launched and operated by members of the NZRA from the NZRA launch site at Taupiri.

52. The preferred option is broader than the minor exemption in the discussion document which would only have exempted primary and secondary schools launching balloons for education purposes**.** The reason for this is that we now have a better understanding of the technologies most frequently used by HAV operators in New Zealand and the risks associated with these technologies. This has enabled us to develop additional exemptions with sufficient specificity to avoid the risk of inadvertently exempting activities that should be licensed.

53. Under the OSHAA Act, HAVs that are not capable of reaching high-altitude (i.e. the highest upper limit of controlled airspace) are not in scope of the OSHAA Act. This means amateur activities such as high-power model rockets, which only reach about 47,000 feet at the moment, are excluded from the scope of the OSHAA Act. However, we understand that rocketry groups including members of the NZRA are aiming to go higher than this and could potentially be required to be licensed over time. As these activities were not intended to be captured by this regime, we consider it is efficient to exempt them now for the avoidance of doubt.

54. Model rocketry does not pose a risk to national security as the period these rockets are airborne is merely minutes and model rockets are not guided by computer, nor can they be programmed to fly on a particular trajectory. The current process of flying rockets into controlled airspace is managed under the civil aviation regime, and the NZRA runs a high-power rocketry (HPR) certification system that is recognised internationally. In light of this, we also propose an exemption from the HAV licensing requirements for model rockets launched and operated by members of the NZRA Model rockets.

55. The Minister may make or revoke exemptions any time under the OSHAA Act.

Impacts

Assessment against objectives

	Manages risks of high altitude activity efficiently and effectively	**The requirement for a license is not disproportionate to the level of risk**	**Reduce compliance costs for licensed activity that is low risk**
Option one: No exemptions	No exemptions would mean a large volume of low risk activity would be caught by this approach which is of no interest to regulators, and was is not intended under the Act as a means of managing risk. In addition, no exemptions policy would create a burden on the regulator which may detract from their ability to focus resources on the high-risk activity.	The requirement to licence all HAV activity would be inconsistent with the principle of ensuring that the costs of licensing are proportionate to the benefits and risks of the activity.	A no exemptions approach adopts the presumption that all activity is risky. This would, however, pose a disproportionate compliance cost on low risk HAV operators which would not be consistent with the policy intent.
Preferred option: exemptions for low risk HAV activities	The preferred option will avoid capturing a high volume of low risk activity, thus allowing the regulator to focus on activities that pose the greatest risk.	The preferred option reflects the policy intention to establish a risk-based and proportionate regime. Balloons that carry only radio-sondes and any one or more of the following sondes: ozone sondes, frost point sondes, and/or backscatter sondes, and the payload is solely used to measure weather, climate, and atmosphere or with devices that only track the progress of the balloon do not pose risks to national security and it is difficult to	If the activity qualifies for an exemption from an HAV licence, there will no additional costs in order to comply with current legislation. HAV activities not exempt will need to seek a licence, but these would be in the elevated risk category, precisely what the Act is regulating.

		justify why they should seek a HAV licence. They will still be required to comply with the Civil Aviation rules.	

4 Consultation

56. MBIE issued a public consultation document on 10 May 2017 with a four week consultation period. The consultation involved an iterative process involving agencies that need the information (including the intelligence community, the Ministry of Foreign Affairs, the Ministry of Transport, the New Zealand Defence Force, and the Civil Aviation Authority) and the entities that must provide the information to ensure that we calibrate in such a way that we are only asking for what we need to apply the tests in the OSHAA Act, having regard to the costs of providing the information, and we are asking for the information in a way that is most helpful to the applicants. In addition to seeking submissions MBIE officials also travelled to the United States to meet with prospective applicants and relevant United Stages regulatory agencies.

57. Key themes from the feedback from industry (including nine written submissions):

- Ensuring that the information requirements are the minimum necessary and consistent with international requirements
- Building in flexibility in terms of the information that can be provided e.g. being able to provide a range of dates for launches, flight paths and launch locations (We note that some of the information requirements can be set as conditions on a licence to be confirmed closer to the proposed launch)
- Providing clarity around definitions of key terms and which types of licence will be required for which kinds of activity
- Providing clarity around how an organisation demonstrates it has the technical capability, especially for those organisations building new capability, and how technical capability is assessed
- The need for good quality guidance to assist applicants to understand the information requirements and how they can meet them.

58. The feedback on HAV exemptions is incorporated into the HAV exemptions section of this this Regulatory Impact Statement (paras 50- 54).

59. The analysis of the submissions resulted in a number of modifications to the application information requirements, including to reduce the amount of information obtained up front by asking for a summary of information in the first instance rather than prescribing in detail what information is to be provided (e.g. communications capability) and to providing greater flexibility in relation to supplying information that may not be known at the time of application. It also enabled us

to identify additional areas where guidance will be developed to assist applicants understand how they can meet the information requirements.

60. With respect to the exemptions for HAVs, the consultation document sought feedback on a minor exemption for primary and secondary schools for educational purposes. Submitters raised the following concerns about the minor HAV exemption including:

- It is unclear what the rationale is for excluding a particular class of HAV operator (primary and secondary schools) rather than an exemption based on the risk of the operator or particular characteristics of the HAV (such as payload size, weight or purpose)
- The potential compliance burden associated with licensing, including on educational and recreational organisations and the risk that this would discourage high-altitude launch activities and associated opportunities to develop skills and innovation, and
- The costs of acquiring a licence are unlikely to be proportional to the risks (despite the regulator's intention for a light-touch approach.)

61. One submitter proposed that an alternative would be to focus the exemption on teaching and educational purposes so that tertiary institutions and community groups could be included in the exemption for their teaching activities. Only one submitter commented that they supported the establishment of a flexible licensing regime for HAVs.

62. The feedback and follow up discussions with some submitters enabled us to develop a better understanding of the uses of certain HAVs and the risks associated with the technologies. This led us to modify our preferred option as discussed in the Problem Definition (paras 33-39), and Options and Impact Analysis (paras 48-54) sections for HAV exemptions in this Regulatory Impact Statement.

5 Conclusions and recommendations

63. This Regulatory Impact Statement concludes that regulations are necessary to set out requirements for licences and permits, particularly for the information to be provided. The preferred approach for information requirements is to seek the minimum amount of information necessary to enable the regulator to undertake the statutory tests in the OSHAA Act. The information requirements are informed by overseas regulatory models and have been produced in close consultation with other New Zealand agencies and with prospective applicants.

64. The Regulatory Impact Statement also proposes an exemption for certain classes of low-risk HAVs. This is consistent with the policy objectives of not imposing a disproportionate cost on low risk HAV operators, and manages risk appropriately in by ensuring high risk activities are not exempt

6 Implementation plan

65. The OSHAA Act will come into force on 21 December 2017.

66. Once Cabinet has agreed to the proposals, drafting instructions will be issued. It is expected that regulations will be promulgated by early September.

67. In addition, officials are working with affected parties to prepare them for the regime coming into force. Schedule 1 of the OSHAA Act (clause 5A) enables the Minister in issuing a high-altitude licence on or after the commencement date to take into account any action or process undertaken before the commencement date if they substantially complied with the provisions of this OSHAA Act. This will enable officials to work with affected parties to ensure that they have a licence for high-altitude activities on the day that the OSHAA Act comes into force.

68. The OSHAA Act contains transitional provisions for Rocket Lab and for payloads carried by Rocket Lab to ensure a smooth transition from the existing contractual arrangements in place to manage their New Zealand activities to the new OSHAA Act.

7 Monitoring, evaluation and review

69. Through the licence application process, MBIE will collect a range of data points (such as number of applications, types of vehicle, payloads, types of applicants) which will give us the ability to monitor the volumes and types of New Zealand space activities. The information gathered will also be used to measure the time and cost involved in administering the licensing process (this information is essential to enable us to cost the New Zealand Space Agency operations). We will also seek feedback from applicants about their experience of the licence application process.

70. New Zealand has certain international obligations relating to space activities and space technologies. The OSHAA Act provides mechanisms to meet those obligations through, for example, conditions imposed on licences and permits. The regulator will monitor compliance with licences and permits to ensure that the activities are conducted in accordance with the terms and conditions of the licence or permit.

71. In addition, a three year review is built into the OSHAA Act. At this time we expect to revisit whether the regulations proposed in this document remain fit for purpose. However, the regulations can be revisited at any time if needed so that they remain current particularly in light of evolving international space law and changing technologies.

Annex 1: Information requirements for licence and permit applications

Proposed information requirements

Basic application details required for all types of licences and permits

If a natural person, then:

- Name
- Address
- Contact details
- Current nationality

If the applicant is a body corporate or other entity , then:

- Legal form and name
- Registered office or principle place of business
- Unique identifier (if applicable)
- Contact details for dealing with the applicant

For each person who has a 10% or more ownership or control interest in the organisation:

- Name
- Principal business address
- Current nationality (relevant only to natural persons)

Information for Launch licences

Launch details

- A description of the launch vehicle (including name, payload capacity, and capabilities of the launch vehicle)
- Name and location of the proposed launch facility or facilities from which launches will occur
- Expectations as to the duration of the licence and/or number of launches covered and launch windows (if known at the time of application)
- Details of the intended basic orbital parameters (including the nodal period, inclination, apogee, and perigee) of any part of a launch vehicle that is intended to reach outer space

Technical capability

- For key persons relied upon for their technical capability in conducting a safe launch:
  - The person's name
  - The relationship of the person to the applicant (e.g. employee, contractor, employee of related company etc)
  - Evidence of the person's qualifications and experience to conduct launch activities
- Any other information the person considers relevant to the assessment of technical capability

Safety

- A safety case to show what steps the applicant has taken, and will continue to take, to manage risks to public safety, including:

- A description of the approach taken to the safety assessment
- A description of the launch vehicle and its proposed operation, including a description of all safety critical systems
- Particulars of all relevant New Zealand and international standards that have been applied or will be applied in relation to the launch vehicle and its operation
- A description of the safety management system the applicant has in place to: a) identify and assess the safety risks associated with the proposed launch activities and b) develop and implement safety control measures
- Details of key personnel responsible for the safety of the launch activities
- A description of the geographical areas likely to be affected by the launch activities and if relevant demographic information about the local community that may be affected by them
- A description of known significant risks associated with the launch activities
- A description of control measures in place to mitigate those risks
- An emergency management plan that describes the systems, processes and procedures that will apply in the event of a major incident.

Orbital debris

- An orbital debris mitigation plan that describes how the applicant will meet the following outcomes that reflect international best practice with respect to orbital debris mitigation:
  - Limitation of debris released during normal operations,
  - Minimisation of the potential for on-orbit break-ups;
  - Minimising the risk of collision;
  - Minimising the risk on Earth and in Space through post-mission disposal.

Other details

- Details of spectrum authorisations (current and pending) for the high altitude vehicle
- Details of spectrum authorisations for any earth stations within New Zealand jurisdiction that it is intended the high altitude vehicle will transmit to or receive from
- International Telecommunications Union Advanced Publication Information (API) number(s) and associated status where required (when known)

Security of launch and of sensitive space technologies

- An overview of protective security (including cybersecurity) measures or policies in place to protect the launch vehicle telemetry and control, other launch systems and sensitive technology.

Information related to an applicant's fitness to hold a licence

Whether the applicant or a person who is to have or is likely to have control over the exercise of the rights under the licence:

- has been charged with or convicted of any offence in New Zealand or any other jurisdiction, or
- has had an aviation document under the Civil Aviation Act or regulations made under the Civil Aviation Act suspended or revoked (other than a revocation at the request of the applicant), or had conditions imposed on an aviation document, or
- has received notice from the Civil Aviation Authority of a proposed adverse decision, or
- has ever had a licence, permit or authorisation for the same or substantially similar activity by a foreign regulatory body suspended, denied or revoked and the reasons given

and if so details of what and when.

Whether the applicant or a person who is to have or is likely to have control over the exercise of the rights under the licence:

- has been subject to an order under the Mental Health (Compulsory Assessment and Treatment)

Act 1992. If so, state when.

Foreign licences, permits or authorisations

For any foreign licences, permits or authorisations applied for, granted or declined, provide:

- Details of the foreign regulator (name, location)
- Authorisation or registration numbers/identifiers and copies of the relevant authorisation
- Date of issue and length of time in which the authorisation is in effect
- Entity/entities in respect of which authorisation has been issued
- Information regarding any conditions imposed and the nature of those conditions

Licence for an overseas launch

If the applicant is applying for an overseas launch licence, in addition to the information required above, the applicant must provide:

- the name and location of the overseas launch facility from which the launch vehicle will be launched; and
- the name, principal business address, and place of organisation or incorporation of the owner of the overseas launch facility.

Information for payload permits

Information about the payload

- A summary of the payload mission and purpose, including a description of the system the payload is part of, for example a constellation of satellites or other similar system.
- Expected operational life of the payload.
- If known at the time of application, for each proposed launch(es) of a payload(s) under the permit, state the anticipated start date(s) and duration of the launch window(s) and location of the launch(es),
- Details of the intended orbital parameters (including the nodal period, inclination, apogee and perigee) of the payload.
- In relation to the payload and, if applicable, spacecraft bus:
  - The primary place of manufacture/assembly
  - The name of the organisation
- In relation to the payload integrator (if different from payload owner):
  - Name
  - Place of organisation or incorporation
  - Place of integration
- A description of the protective security (including cyber security) measures or policies (if any) in place to protect the:
  - payload command and control systems,
  - unenhanced/raw remote sensing data, and
  - systems commanding remote sensing systems and sensor tasking.

- A description of the ground stations the payload will be communicating with for commanding the payload or for the transfer of data collected by the payload.

Information about payload capabilities

- Overview of the payload and its subsystems, and the payload capabilities and intended uses
- Summary of manoeuvring capability, if any
- If the management, oversight or control of the payload or its operation (including the ground segment) is being sub-contracted, the:
  - Name

- Address
- Place of organisation or incorporation
- Description of the services being sub-contracted.

Information about payloads with remote sensing capability

- A description of payload sensors and summary of their capability including:
  - Resolution, field of view, and field of regard
  - On-board storage and processing capabilities
  - Geolocation accuracy
  - Persistence

- Summary of who the enhanced and "unenhanced/raw" remote sensing data is to be provided to, including:
  - customers or classes of customers who will have access to the data,
  - whether any unenhanced data will be provided to any customers or classes of customers
  - plans for making the "unenhanced/raw" data generated by the payload(s) available to governments whose territories have been sensed
  - plans to make the "unenhanced/raw" data available for non-commercial scientific, education and other public-benefit purposes.

- An overview of any protective security (including cybersecurity) measures or policies in place to protect the raw remote sensing data and systems commanding the payload or remote sensing system

Orbital debris mitigation

- An orbital debris mitigation plan that describes how the applicant will meet the following outcomes that reflect international best practice with respect to orbital debris mitigation:
  - Limitation of debris released during normal operations,
  - Minimisation of the potential for on-orbit break-ups;
  - Minimising the risk of collision;
  - Minimising the risk on Earth and in Space through post-mission disposal.

Other details

- Details of spectrum authorisations (current and pending) for the high altitude vehicle
- Details of spectrum authorisations for any earth stations within New Zealand jurisdiction that it is intended the high altitude vehicle will transmit to or receive from
- International Telecommunications Union Advanced Publication Information (API) number(s) and associated status where required (when known)

Foreign licences, permits or authorisations

For any foreign licences, permits or authorisations applied for, granted or declined:

- Details of the foreign regulator (name, location)
- Authorisation or registration numbers/identifiers and copies of the relevant authorisation
- Date of issue and length of time in which the authorisation is in effect
- Entity/entities in respect of which authorisation has been issued
- Information regarding any conditions imposed and the nature of those conditions

Permit for launch of payload overseas

If the applicant is applying for an overseas payload permit, in addition to the information required above:

- the name and location of the overseas launch facility from which the payload is intended to be launched; and

- the name, principal business address, and place of organisation or incorporation of the owner of the overseas launch facility.

Information for High-altitude vehicle licences

Technical capability and safety

[Include a definition of an aircraft in the regulations by reference to the Civil Aviation Act]

- If the HAV is not an aircraft, then for key persons relied upon for their technical capability in conducting a safe HAV launch:
  - The person's name
  - The relationship of the person to the applicant (e.g. employee, contractor of HAV activities)
  - Evidence of qualifications and experience to undertake the activity
  - any other information the person considers relevant to the assessment of technical capability

- Evidence of safety practices in relation to the (non-aircraft) HAV activities, including (if applicable):
  - A description of the approach taken to the safety assessment
  - A description of the HAV and its proposed operation including a description of all of the safety critical systems
  - Particulars of all relevant New Zealand and international standards that have been applied or will be applied in relation to the HAV
  - A description of the safety management system the applicant has in place to: a) identify and assess the safety risks associated with the proposed HAV activities and b) develop and implement safety control measures
  - Details of the key personnel responsible for the safety of the HAV activities
  - A description of the geographical areas likely to be affected by the proposed HAV activities and if relevant demographic information about the local community that may be affected by it
  - A description of the significant risks associated with the proposed HAV activities
  - A description of the control measures in place to mitigate those risks
  - An emergency management plan that describes the systems, process and procedures that will apply in the event of a major incident

Information about the high-altitude vehicle and purpose of launch or launches

- A summary of the mission and purposes of each HAV launch, including:
  - a description of the HAV (including name and type of vehicle, payload capacity and capabilities of the HAV)
  - proposed flight path or flight plan (if applicable)
  - If known at the time of application, anticipated launch windows
  - proposed launch site (including for multiple launch sites if applicable)
  - anticipated duration of the mission
  - intended flight level band or range

- Where there is a HAV payload:
  - An overview of the HAV payload and its subsystems, and the payload capabilities and intended uses [e.g. imagery, communications, science, remote sensing etc]
  - If applicable, a summary of remote sensing capabilities of the HAV payload
  - If applicable, a summary of who the remote sensing data is to be provided to
  - A description of the means of communicating with the HAV for the purposes of commanding the HAV or its payload or for the transfer of data collected by the HAV

payload.

- If the management, oversight or control of the HAV payload or its operation (including the ground segment) is being sub-contracted, provide:
  - Name
  - Address
  - Place of organisation or incorporation
  - Description of the services being sub-contracted.

Other details

- Details of spectrum authorisations (current and pending) for the high altitude vehicle
- Details of spectrum authorisations for any earth stations within New Zealand jurisdiction that it is intended the high altitude vehicle will transmit to or receive from

Details related to an applicant's fitness to hold a licence

- If the applicant or person who is to have or likely to have control over the exercise of rights under the licence holds an aviation document under the Civil Aviation Act the details in this document may satisfy this information requirement
- Otherwise, whether the applicant or a person who is to have or is likely to have control over the exercise of the rights under the licence:
  - has been charged with or convicted of any offence in New Zealand or any other jurisdiction, or
  - has had an aviation document under the Civil Aviation Act or regulations made under the Civil Aviation Act suspended or revoked (other than a revocation at the request of the applicant), or had conditions imposed on an aviation document, or
  - has received notice from the Civil Aviation Authority of a proposed adverse decision, or
  - has ever had a licence, permit or authorisation for the same or substantially similar activity by a foreign regulatory body suspended, denied or revoked and the reasons given

and if so details of what and when.

Whether the applicant or a person who is to have or is likely to have control over the exercise of the rights under the licence:

- has been subject to an order under the Mental Health (Compulsory Assessment and Treatment) Act 1992. If so, state when.

Information for launch facility licences

Facility details

- A summary of the facility, including location and an overview of its proposed launch operations (including a general description of launch vehicles to be launched from the facility, frequencies of operation, and proposed launch trajectories)
- A site plan showing launch site and command and control centre
- An overview of any protective security (including cyber-security) measures or policies in place to protect launch facility systems.

Technical capability

- For key persons relied upon for their technical capability in operating a safe launch facility:
  - The person's name
  - The relationship of the person to the applicant (e.g. employee, contractor, employee of related company etc)
  - Evidence of the person's qualifications and experience to conduct launch facility operations and activities and any other information the person considers relevant to the assessment of

technical capability

Safe Operation of the Facility

- A safety case to show what steps the applicant has taken, and will continue to take, to manage risks to public safety, including:
  - A description of the approach taken to the safety assessment
  - A description of the launch facility and its proposed operation including a description of all of the safety critical systems
  - Particulars of all relevant New Zealand and international standards that have been applied or will be applied in relation to the launch facility
  - A description of the mechanisms used to make sure the facility is built to a safe standard and its operation is safe
  - Details of the key personnel responsible for the safety of the facility
  - A description of the geographical areas likely to be affected by the facility and if relevant demographic information about the local community that may be affected by it
  - A description of the known significant risks associated with the launch facility
  - A description of the control measures in place to mitigate those risks
  - An emergency management plan that describes the systems, process and procedures that will apply in the event of a major incident

Information related to an applicant's fitness to hold a licence

Whether the applicant or a person who is to have or is likely to have control over the exercise of the rights under the licence:

- has been charged with or convicted of any offence in New Zealand or in any other jurisdiction,
- has had an aviation document under the Civil Aviation Act or regulations made under the Civil Aviation Act suspended or revoked (other than a revocation at the request of the applicant), or had conditions imposed on an aviation document, or
- has received notice from the Civil Aviation Authority of a proposed adverse decision,
- has ever had a licence, permit or authorisation for the same or substantially similar activity by a foreign regulatory body suspended, denied or revoked and the reasons given

and if so details of what and when

Whether the applicant or a person who is to have or is likely to have control over the exercise of the rights under the licence:

- has been subject to an order under the Mental Health (Compulsory Assessment and Treatment Act) 1992, and if so, when.

Foreign licences, permits or authorisations

For any foreign licences, permits or authorisations applied for, granted or declined*:*

- Details of the foreign regulator (name, location)
- Authorisation or registration numbers/identifiers and copies of the relevant authorisation
- Date of issue and length of time in which the authorisation is in effect
- Entity/entities in respect of which authorisation has been issued
- Information regarding any conditions imposed and the nature of those conditions.