Submission form

New Zealand Space Policy Review Consultation

Contents

How to make a submission

The space policy review consultation is an opportunity to share your interests in space and views on the values and policy objectives that underpin New Zealand's space activities and engagements.

You can make a submission either though this form or the survey linked below.

Submissions close by **31 October 2022**.

Submission form

This submission form can be accessed via the MBIE consultation portal at www.mbie.govt.nz/have-your-say/new-zealand-space-policy-review. To make a submission through this form you will need to:

1. Fill out the **submitter information** page within this document, including your name, email address, phone number and organisation. If you are representing an organisation, please ensure you have the authority to represent its views.

2. Fill out your **responses to the questions** within this document. You can answer any or all of these questions.

3. Please **send this submission form** either:

    - Via email: to spacepolicyreview@mbie.govt.nz; or

    - Via post: to: Space Policy Review, Ministry of Business, Innovation and Employment, PO Box 1473, Wellington 6140.

Submission survey

Alternatively, you can complete a submission on the same questions within this form using the following link: https://www.research.net/r/spacepolicyreview

How feedback will be used

Your feedback will be collated into a summary of feedback report. This will assist the New Zealand government to create or amend space policies and to look at:

- *Creating a National Space Policy*: a document which outlines New Zealand's values and objectives on space, including for our international partners.

- *Articulating New Zealand's broad interests on space across multiple activities and engagements*: including at United Nations fora and with international space and security partners.

- *Developing future space strategies, policies and regulatory changes*: including adjusting our policies and regulations to meet advancements in space technology.

- *Future engagement on space policy with the New Zealand public*: including on any key areas of interest identified through the consultation.

  Considering whether any legislative changes are required to the Outer Space and High-altitude Activities Act 2017.

MBIE has commissioned PublicVoice to produce a summary of feedback report on the space policy review consultation. PublicVoice will collate all submissions, and other feedback received through the course of the consultation.

All feedback from the space policy review consultation will be collated by PublicVoice for the purposes of producing a summary of feedback report. MBIE will upload the summary of feedback report onto the MBIE website, and may also upload PDF copies of submissions received to MBIE's website in due course.

Private information

The *Privacy Act 2020* establishes certain principles with respect to the collection, use and disclosure of information about individuals by various agencies, including MBIE.

Any personal information you supply to MBIE in the course of making a submission will be used in the collation of feedback on the space policy review consultation, to facilitate the purposes outlined in the "how my feedback will be used" section above.

Release of information

Submissions remain subject to requests under the *Official Information Act 1982* and MBIE will consider you to have consented to the release of your submission in full, unless you clearly specify otherwise.

Release of your submission will include releasing your name in a list of submitters in the report, and as part of uploading submissions in due course to the MBIE website – www.mbie.govt.nz, and in the event of a request under the Official Information Act 1982.

If you do not wish for certain information in your submission to be released, please tick the relevant boxes on the next page and outline which parts you consider should be withheld, together with the reasons for withholding the information.

MBIE will take such objections into account and will consult with submitters when responding to requests under the *Official Information Act 1982*.

Submitter information

About you

Name: privacy of natural persons

Email address privacy of natural persons

Are you making this submission on behalf of a business or organisation?

☐ Yes ☒ No

If yes, please tell us the title of your company/organisation.

Would you like to be kept informed of the outcome of the Space Policy Review?

☒ Yes ☐ No

Are you happy for MBIE to contact you if we have questions about your submission?

☒ Yes ☐ No

Release of information

☒ Please tick this box if you do not wish your name and contact details above to be included in any information about submissions that MBIE may publish.

☐ Please tick this box if there is other information within your submission that you want to be kept confidential. If you have ticked this box, please state your reasons and grounds under the Official Information Act 1982 below, for consideration by MBIE.

Section 1: New Zealand interests in space

New Zealand's association with space goes back centuries – the first Māori explorers navigated by the stars to Aotearoa New Zealand, and centuries later they were followed by European navigators whose instruments also looked to the stars. Today, our modern navigation systems are still guided from space.

New Zealanders rely on space assets to do everyday tasks, like banking, transporting goods, travelling by air, and talking with each other. As the world becomes more connected and digitised, our reliance on space to support our daily lives is only going to increase.

The New Zealand government pursues a range of cross-cutting interests in space – including economic development, national security, regulation, international relations, and environmental interests. These interests are often articulated in broader government policies, strategies and assessments and inform our approach to space policy interests.

Question 1. What are your interests and relationship to space? (Pick as many as apply below)

General interest in space	Work in the New Zealand space sector	Cultural connections to space	Academic involvement on space issues	Other (please explain in box below)
☐	☒	☐	☐	☐

Please note any other interests and relationship to space below that you would like to share.

As Rocket Lab's Education Program Lead, I am responsible for the creation, design, implementation, evaluation, and promotion of Rocket Lab's international education programs. Rocket Lab instigated many of these programs – including the Rocket Lab Scholarship and the Space Ambassadors - primarily in the interest of supporting the development of a home-grown aerospace talent pipeline in New Zealand, and addressing a gap in space education and awareness of New Zealand's space activities. Internationally, public space organisations such as NASA and ESA have a long heritage of well-resourced education offerings to create subsequent generations of aerospace-capable citizens, young people who grew up with the idea that working in aerospace was not only possible but a very real probability with clear pathways and resources to get there. This is not the case in the private sector, and has not historically been the case in New Zealand until very recently.

Personally, I grew up wanting to work in aerospace after meeting Shannon Lucid, a female astronaut, who visited New Zealand in 1997 as part of the Telecom Space Explorers program. I was later supported by the Royal Society of New Zealand to attend two separate residential space 'camps', including the Elaine P. Snowden Astronomy School at the University of Canterbury. However, due to a lack of support and resources throughout my education journey, I sought other pathways to pay the bills that later became career opportunities in hospitality, the wine industry, and tourism. Through the earnings from these career choices I was able to finish my undergraduate degree in 2016. I became a Computer Science teacher with Ako Mātātupu: Teach First NZ, teaching in large low decile schools in South Auckland. Through this work I became a curriculum advisor, teacher mentor, and international consultant, which later eventuated in my role at Rocket Lab.

Through my work as Education Program Lead I have been supported by the wider company to build education programs that not only provide real outcomes for young people at all stages of their education journeys to help them plot their path towards careers in space and STEM – I have also designed all of them to address considerations of educational equality, diversity, equity, intersectionality, and inclusion at their core. I am

motivated both as a specialist in technology education and curriculum design for equity, and my personal experience 'missing out' on a career as an aerospace engineer.

In November 2021 we created our Space Ambassador Schools Network, through which over 500 schools have now registered to access and deliver Rocket Lab's Education Programs. 37% of these schools are 'low decile' or serve high deprivation communities, with an estimated student reach of over 300,000 New Zealand school students from Years 3 through to 13.

Through the Space Ambassador Schools Network, we deliver our Space Ambassadors Program, where over 80 of our employees in all departments and career stages are given training, resources, and release time to travel to schools and connect with classes online to get young people excited about space and STEM and help remove barriers to them achieving their dreams. Since June 2021, our Space Ambassadors have connected with over 15,000 students over 182 separate visits.

In April 2022, we launched our Space Educators program. With personal experience of the challenges teachers face, and understanding the barriers of accessibility in current industry solutions to these, this initiative was designed to provide support and resources to teachers to enable them to deliver authentic and transformative learning experiences for their students, that we can also amplify throughout the Space Ambassador Schools network to maximise their impact. The Space Educators Program selects educators – mostly classroom teachers – at all levels of their career from all subject areas and year levels, and connects them with our Space Ambassadors for direct access to inspiring, real-world applications for the content they teach. During the Space Educators Academy, these elite educators are welcomed to Rocket Lab's facilities to collaborate with each other with the support of workshops and professional development opportunities. Separate to our Space Ambassador Schools Network, Rocket Lab currently supports 29 Space Educators, with an estimated student reach of 288,144 in their own communities.

We have also partnered with MOTAT to deliver Rocket Club, the first industry-led model rocketry program for kids aged 10-15; and a tutoring program for low decile school students studying STEM for NCEA. Beyond school age, we provide pathways to recruitment through our Fellowship, Internship, Apprenticeship, and Scholarship programs, and we are forging collaborative partnerships with technical institutions in Te Pukenga to support more direct pathways for young people to transition from secondary school through to the aerospace sector.

These efforts are a considerable investment from the company, and a unique engagement with the intention to provide opportunities for inspiration, information, and involvement at as many different stages of a child's development, based on what they love, and not what they have. Particularly for students of Māori or Pacific descent, who are traditionally excluded through educational inequalities, we want to provide a diverse portfolio of accessibility for careers in aerospace – whether with Rocket Lab or any of the other growing entities in the sector. We believe we will see the outcomes of these efforts in the years to come, as we build the capacity for the next generation of space.

All of this is made possible by Rocket Lab's core business. Rocket Lab is both a leader in the worldwide space industry, and is also uniquely leading the industry with the breadth and structure of our education programs, and the impact they are having even in their relative infancy. While public space investment commonly comes with an education mandate, private space does not – yet Rocket Lab commits to this unique mission with the belief that accessible education will build better a future in our industry and beyond. As Rocket Lab's activities and business expands, so does the support for our education programs – both with the financial resourcing to support the long ROI of education investment, enthusiastic new employees who wish to give back to their communities, and the need to address growing recruitment and ensure we have a sufficient domestic talent pipeline to involve as many New Zealanders in this journey as possible.

Section 2: New Zealand values in space

New Zealand's values speak to who we are as a nation and how we act in the world. The following are values that the New Zealand government aims to reflect and promote through space activities, engagements and the use of space technologies. These values are informed by the concept of kaitiakitanga (guardianship) as a guiding framework to ensure that space, and its benefits, remain accessible for all.

- **Innovation** – We value innovation, science, and technology as means of advancing our knowledge about the universe, driving productivity in the economy and improving the wellbeing of New Zealanders. We also want to encourage innovation which is responsible, enables New Zealand to be a good steward of the environment, and enables collaboration with companies and other governments.
- **Responsibility** – Space is a unique domain which is shared by all states. We act responsibly to promote a peaceful, stable, and secure space environment and to inform responsible behaviours on Earth. This includes acting in accordance with the principles in the Outer Space Treaty and other international agreements and arrangements applicable to space, as well as New Zealand's domestic law and policies. We also seek to influence the development of new international instruments, and develop norms and standards with like-minded countries, where there are gaps.
- **Stewardship** – Space offers a unique perspective that is crucial for understanding our environment, including to fight climate change, and better manage our natural resources. At the same time, we take care to act sustainably in space and on Earth to preserve the benefits of these environments for future generations.
- **Partnership** – We are better when we work together. Participation, Partnership, and Protection are key principles of Te Tiriti o Waitangi and we want to continue to engage with Māori on New Zealand's space activities and engagements. The government works alongside New Zealanders and the space sector in developing policy and regulations that impact them; collaborates with international partners on economic, security and other interests; and within international institutions to promote New Zealand's values.

Question 2. To what extent do you agree or disagree that these values should apply to New Zealand's space activities and engagements?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
Innovation	☐	☐	☐	☐	☒	☐
Responsibility	☐	☐	☐	☐	☒	☐
Stewardship	☐	☐	☐	☐	☒	☐
Partnership	☐	☐	☐	☐	☒	☐

Question 3. Are there any other values, or aspects of kaitiakitanga (guardianship), that you think should apply to New Zealand's space activities and engagements (for example, cultural values regarding space).

NA

Section 3: New Zealand's space policy objectives

The New Zealand government supports a range of interests in space (economic, environmental, international, national security and regulatory) by pursuing the following key policy objectives:

- Growing an innovative and inclusive space sector
- Modelling sustainable space and Earth environments
- Promoting the responsible uses of space internationally
- Protecting and advancing our national security and economic interests
- Regulating to ensure space activities are safe and secure

Question 4. Are any of these key policy objectives of particular importance to you?

The submission from Rocket Lab suggested the introduction of an additional policy objective – "To increase New Zealand's understanding of space and its criticality to the nation". I believe this will also contribute to the current policy objective, "Growing an innovative and inclusive space sector".

I believe this first objective is key to enabling democratic and collaborative implementation of the others. The interpretation of other policy objectives – modelling sustainable space and Earth environments, promoting the responsible uses of space international, protecting and advancing our national security and economic interests, and regulating to ensure space activities are safe and secure – will vary depending on the worldviews and education of those who interpret them. If large groups of New Zealanders – either in the community, in government or industry – are mis-, dis-, mal-, or ill-informed about what this may mean and why each objective is of great import to our future, it is unlikely there will be the social cohesiveness to support outcomes that will benefit all New Zealanders.

Many young New Zealanders we have engaged with through the Space Ambassadors are not aware we have a space industry – let alone that pathways to working in aerospace are now somewhat more accessible than elsewhere due to our active recruitment of young people transitioning through technical and vocational qualifications.

Rocket Lab is actively engaging in these activities through our Education Programs, and then ongoing pathways into recruitment. My work is purely centred on these outcomes. I would welcome the support of government to continue this work and ensure teachers, schools, and communities – and leaders in these communities - have accessible and culturally responsive resources to help them understand New Zealand's role in the space industry – and the significant role the space industry already has in all our lives.

Section 3a: Growing an innovative and inclusive space sector

OBJECTIVES

The New Zealand government supports the growth of an innovative and inclusive space sector. This means:

- Promoting New Zealand's natural advantage for conducting space activities, and research and development expertise across the space value chain
- Partnering within New Zealand and internationally to increase research and development capabilities
- Identifying opportunities to increase diversity in the space sector
- Using cutting-edge space technology and space sourced data to support New Zealand's values and interests

Question 5. To what extent do you agree or disagree that these policy objectives will help the New Zealand government to grow an innovative and inclusive space sector?

a. Promoting New Zealand's natural advantage for conducting space activities, and research and development expertise across the space value chain

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
☐	☐	☐	☐	☒	☐

b. Partnering within New Zealand and internationally to increase research and development capabilities

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
☐	☐	☐	☐	☒	☐

c. Identifying opportunities to increase diversity in the space sector

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
☐	☐	☐	☐	☒	☐

d. Using cutting-edge space technology and space sourced data to support New Zealand's values and interests î Identifying opportunities to increase diversity in the space sector

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know

☐	☐	☐	☐	☒	☐

Question 6. Do you have any comments on these policy objectives (e.g. any suggested change to how they are framed)? Is there anything missing?)

As with Rocket Lab, I also support objective of growth of an innovative and inclusive space sector and welcomes the New Zealand government's proactive approach to promoting and facilitating this. I would welcome the commitment of government once those opportunities have been identified, to devote resources and opportunities for collaboration through a variety of stakeholders in aerospace, government, and education sectors, and to likewise support existing initiatives.

Question 7. Are there any other policy objectives that you think would help the New Zealand government to grow an innovative and inclusive space sector?

As above, the suggested addition of the objective "To increase New Zealand's understanding of space and its criticality to the nation" would provide a foundation of awareness through which all New Zealanders can strive towards career paths they may not be aware are available to them. As educational and informational inequality disproportionately affects Māori and Pacific communities, addressing this inequality may naturally encourage more young people from these communities to consider how their worldviews are valued and needed in the space industry for its ongoing sustainability and evolution.

Question 8. Do you have any questions or comments about what these objectives would mean in practice?

With regards to "**Identifying opportunities to increase diversity in the space sector",** as opportunities are identified, I would welcome the creation of community-accessible media and resources to support understanding of these opportunities and encourage collaborative solution-making. More visibility and transparency on what individual organisations are implementing – either from government, aerospace, education, or non-profit sectors – with insight into government investment and effective outcomes of these programs might also provide more opportunities for collaboration, and less redundancy.

Section 3b: Modelling sustainable space and Earth environments

OBJECTIVES

The New Zealand government advocates for the sustainable use of space to ensure its benefits remain available to future generations. At the same time we seek to use space, and space technologies, to gain understanding and better protect our environment on Earth. Specifically this means:

- Encouraging inclusive, sustainable space collaborations within New Zealand
- Assessing the cumulative impact of space activities on the Earth environment
- Assisting with solving sustainability challenges through space data, including to better monitor or understand the Earth's environment
- Investing in New Zealand's capability to retain, grow, access and use sustainable space technologies

Question 9. To what extent do you agree or disagree that these policy objectives will help the New Zealand government to model sustainable space and Earth environments?

a. Encouraging inclusive, sustainable space collaborations within New Zealand

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
☐	☐	☐	☐	☒	☐

b. Assessing the cumulative impact of space activities on the Earth environment

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
☐	☐	☐	☒	☐	☐

c. Assisting with solving sustainability challenges through space data, including to better monitor or understand the Earth's environment

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
☐	☐	☐	☐	☒	☐

d. Investing in New Zealand's capability to retain, grow, access and use sustainable space technologies

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
☐	☐	☐	☐	☒	☐

Question 10. Do you have any comments on these policy objectives (e.g. any suggested change to how they are framed)? Is there anything missing?)

N/A

Question 11. Are there any other policy objectives that you think would help the New Zealand government to model sustainable space and Earth environments?

N/A

Question 12. Do you have any questions or comments about what these objectives would mean in practice?

N/A

Section 3c: Promoting the responsible uses of space internationally

OBJECTIVES

The New Zealand government promotes the responsible use of space internationally. This means:

- Advocating for effective international rules, norms and standards in space
- Partnering with like-minded launch states to adopt peaceful, responsible and sustainable space practices

- Collaborating internationally to increase New Zealand's influence and capabilities in the global space sector

Question 13. To what extent do you agree or disagree that these policy objectives will help the New Zealand government to promote the responsible uses of space internationally?

a. Advocating for effective international rules, norms and standards in space

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
☐	☐	☐	☒	☐	☐

b. Partnering with like-minded launch states to adopt peaceful, responsible and sustainable space practices

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
☐	☐	☐	☒	☐	☐

c. Collaborating internationally to increase New Zealand's influence and capabilities in the global space sector

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
☐	☐	☐	☐	☒	☐

Question 14. Do you have any comments on these policy objectives (e.g. any suggested change to how they are framed)? Is there anything missing?)

N/A

Question 15. Are there any other policy objectives that you think would help the New Zealand government to promote the responsible uses of space internationally?

N/A

Question 16. Do you have any questions or comments about what these objectives would mean in practice?

N/A

Section 3d: Protecting and advancing our national security and economic interests

OBJECTIVES

To sustainably grow our space sector by having due regard to our national interests we need to:

- Use space assets to protect and advance New Zealand's national security and economic interests
- Manage the broad range of security risks in space to protect New Zealand's space industry
- Collaborate with international space and security partners to pursue New Zealand's national security and economic interests

Question 17. To what extent do you agree or disagree that these policy objectives will help the New Zealand government to protect and advance our national security and economic interests?

a. Use space assets to protect and advance New Zealand's national security and economic interests

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
☐	☐	☐	☐	☒	☐

b. Manage the broad range of security risks in space to protect New Zealand's space industry

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
☐	☐	☐	☐	☒	☐

c. Collaborate with international space and security partners to pursue New Zealand's national security and economic interests

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
☐	☐	☐	☐	☒	☐

Question 18. Do you have any comments on these policy objectives (e.g. any suggested change to how they are framed)? Is there anything missing?)

I believe that greater understanding of what New Zealand's national security and economic interests are, and how space technologies already contribute to these, would contribute to greater social cohesiveness and a more informed democratic process around how to address these interests and further them as a nation.

Question 19. Are there any other policy objectives that you think would help the New Zealand government to protect and advance our national security and economic interests?

Currently, young New Zealanders interested in pursuing careers in aerospace at undergraduate level have too many incentives to seek opportunities overseas. It is in our economic and security interests to ensure New Zealanders receive high quality education support and pathways into all areas of aerospace here in Aotearoa.

Rocket Lab has begun this work in earnest, with the establishment of internships, partnerships with tertiary and polytechnical institutions, and even the creation of aerospace-specific qualifications. The University of Canterbury is currently the only institution that offers Aerospace Engineering at undergraduate level, and this is offered as a minor subject only.

Ensuring all New Zealanders have adequate opportunities in education will also contribute to the protection of national security and economic interests. I would welcome the consideration of a policy objective referring to education support and delivery.

Question 20. Do you have any questions or comments about what these objectives would mean in practice?

N/A

Section 3e: Regulating to ensure space activities are safe and secure

OBJECTIVES

The New Zealand government regulates to ensure New Zealand space activities are safe and secure. This means:

- Facilitating the safe and secure use of emerging space technologies from New Zealand
- Clarifying what New Zealand space activities are inconsistent with the national interest
- Promoting and protecting New Zealand's interests through permitting space technologies

Question 21. To what extent do you agree or disagree that these policy objectives will help the New Zealand government to ensure space activities are safe and secure through regulation?

a. Facilitating the safe and secure use of emerging space technologies from New Zealand

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
☐	☐	☐	☐	☒	☐

b. Clarifying what New Zealand space activities are inconsistent with the national interest

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
☐	☐	☐	☒	☐	☐

c. Promoting and protecting New Zealand's interests through permitting space technologies

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
☐	☐	☐	☒	☐	☐

Question 22. Do you have any comments on these policy objectives (e.g. any suggested change to how they are framed)? Is there anything missing?)

N/A

Question 23. Are there any other policy objectives that you think would help the New Zealand government with regulating to ensure space activities are safe and secure?

N/A

Question 24. Do you have any questions or comments about what these objectives would mean in practice?

N/A

Section 3e(i): Regulating in line with our national interests

Under the Outer Space and High-altitude Activities Act 2017, the Minister for Economic and Regional Development may decline a licence or permit if they are *not satisfied* that it is in the national interest. The Minister may take into account when considering the national interest: economic or other benefits to New Zealand; risks to national security, public safety, international relations or other national interests; risks that cannot be mitigated by conditions of the licence or permit; and any other relevant matters.

As part of policy to inform the language in the Act, Cabinet has agreed to principles that will inform the consideration of national interest for space activities, as well as what is not in New Zealand's national interests. These principles are:

- **Responsibility**: that space activities from New Zealand should be conducted with due care and in such a way as to promote an orbital environment where actors avoid causing harm or interference with the activities of others.
- **Sustainability**: New Zealand should promote sustainable space practices that preserve the benefits of space for future generations.
- **Safety**: space activities from New Zealand should be conducted in a way that does not jeopardise human safety (including the safety of people in space).
- **Aligning with New Zealand's values and interests:** space activity from New Zealand should uphold the policies and values supported by New Zealanders and align with broader policy settings.

The following space activities are *not in New Zealand's interests*; i.e. the Minister will not authorise space activities:

- that contribute to nuclear weapons programmes or capabilities
- with the intended end use of harming, interfering with, or destroying other spacecraft or space systems on Earth

- with the intended end use of enabling or supporting specific defence, security or intelligence operations that are contrary to government policy
- where the intended end use is likely to cause serious or irreversible harm to the environment.

Question 25. Are there any comments you would like to make about these criteria that inform consideration of the national interest?

N/A

Question 26. What questions do you have about how the national interest is considered in practice?

How would 'National Interest' be defined?

In the process of developing this concept of national interest, who would participate in the decision-making process and how would the group ensure the informed consent of representatives contributing to this definition?