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Office of the Minister for Economic Development and Science and Innovation

Chair, Cabinet Economic Growth and Infrastructure Committee

THE SCOPE OF SPACE POLICY AND A LEAD SPACE AGENCY

Proposal

1 This paper proposes a broad scope for space policy including all of New Zealand's interests in space: space launches, satellites, satellite applications and payloads performing similar applications carried to very high altitudes by balloons and potentially other aircraft.

2 The paper also proposes that there be a lead agency for space policy and to administer the proposed space legislation. The functions of the lead space policy agency could be located in the Ministry of Transport or the Ministry of Business, Innovation and Employment (MBIE). The Minister of Transport and I have agreed that, due to the significant economic development and innovation objectives of the proposed Space Activities Act, and the need to maintain momentum in the policy, legislation and implementation work streams, MBIE should be the lead space policy agency for an initial period of three years. However, this decision will be reconsidered as part of the legislatively required review of the Space Act which will take place three years after enactment. The lead space policy agency will have a significant coordination role and a cross-agency coordination mechanism is proposed to formalise this.

Executive summary

3 Rapid developments in space technology have enabled smaller, cheaper satellites and lower cost satellite launch services. This has made space accessible to more players - a process sometimes referred to as the democratisation of space. Rocket Lab's innovative new rocket technology and streamlined business model put it at the forefront of these developments.

4 Rocket Lab's proposal to commence commercial space launches from New Zealand has precipitated the need for us to develop legislation to enable space launches from our territory, to meet our obligations under international treaties as a launch state and manage the safety and security risks. The process of developing the legislation has highlighted that space is of immense strategic importance around the world and that international legal and policy frameworks are evolving in response to the fast pace of development in technology and business models.

5 It has become clear that we have to rapidly build our policy capabilities in the space realm to capitalise on the emerging economic opportunities, advance our interests in space, and manage international relationships and obligations.

6 New Zealand's interests in space extend beyond space launches to satellites and their uses. Satellites enable the provision of critical services and infrastructure including banking, transportation, electricity, telecommunications, navigation, remote sensing (with applications ranging from agriculture and land-use monitoring to disaster management and climate change) and national security. Hence, this paper proposes that space policy

encompasses all of New Zealand's interests in space including economic development, national security, foreign policy, safety and the environment. It also proposes that space policy includes the use of technologies operating at very high altitudes that carry out similar functions to satellites, so that New Zealand is well positioned to control these activities in the future as technological advances and circumstances require.

7 The breadth of space policy means that knowledge is located in different agencies. New Zealand has a few pockets of space policy expertise including the Radio Spectrum policy team at MBIE and satellite applications in the New Zealand Defence Force (NZDF), Land Information New Zealand (LINZ) and some Crown Research Institutes. However, no single agency is responsible for advancing New Zealand's policy interests in relation to space and space applications. I propose to address this by assigning a lead agency for space policy. The agency will assume the substantive policy lead in areas where there are currently gaps (e.g. in the economic development dimensions of space policy, the regulatory dimensions of space policy and contributing to the development of international norms and rules associated with the use of space). The agency will also have a substantive coordination role and a cross-agency coordination mechanism is proposed to formalise this.

8 I do not consider that the scale of the proposed policy and regulatory functions justifies the establishment of a standalone agency. Instead the new functions can be located within an existing agency based on the strategic fit and alignment with the agency's mandate and capabilities. The two most suitable candidates for the space policy functions are either the Ministry of Transport or MBIE. The choice between these agencies comes down to a judgement about the best strategic fit for space policy i.e. whether it is more closely aligned to growth and innovation outcomes or more closely aligned with transport safety including system resilience. In both Australia and the UK, the space policy lead agency is hosted by agencies with substantially similar responsibilities to those of MBIE in the science and innovation and economic development areas.

9 The regulatory functions associated with implementing the proposed regulatory regime for space launch activities could be located with the lead policy agency or with a separate entity. However, as the authorisation functions (including national security considerations, safety assessment and financial assurance) are closely associated with the policy functions, I propose to keep these two functions together.

10 Once the proposed legislation is enacted, licensing fees on industry participants will be used to recover the costs associated with the regulatory functions. An implementation work stream has been established to develop the approach to approving and monitoring Rocket Lab's launches and payloads in 2016 and to develop detailed procedures for approving and monitoring rocket launches and payloads once the Act comes into force.

11 Until the legislation is enacted, I propose that the costs associated with implementing the regulatory regime be absorbed within agency baselines as the process involves a degree of capability building by agencies and there are public good reasons for meeting these costs from Crown funding.

12 The costs associated with developing space policy will be met from Crown funding as is usual for funding government policy advice. s 9(2)(f)(iv) [redacted] Should MBIE or the Ministry of Transport be the lead agency, they would address any budget pressures associated with taking on these functions as part of their four year plan in the 2017 Budget.

Background

Rocket Lab's proposal to commence commercial space launches from New Zealand requires us to rapidly develop our policy and regulatory capability

13 Rocket Lab (a US company founded by New Zealander Peter Beck and with a New Zealand subsidiary) is offering regular commercial space launches from the Mahia Peninsula commencing in late 2016. Rocket Lab has developed innovative rocket technology that enables it to offer dedicated launches for small satellites (at around 10% of the price of other commercial services) and its streamlined launch service aims to reduce the time required to launch small satellites into space, making commercial launches more accessible. s 9(2)(b)(ii)

1 New Zealand offers advantages as a space launch location for reasons including our remote geographic position and low levels of air traffic. s 6(a)

2 s 6(a) A regulatory regime will also need to have due regard for payloads which could have dual civilian and military/intelligence uses, or the launch of which would not be in New Zealand's national security or foreign policy interests.

14 Commercial space launches provide economic opportunities for New Zealand, but are set against a background where security issues are highly relevant[1]. For example, before Rocket Lab can commence space launches, New Zealand must conclude a Technology Safeguards Agreement (TSA) with the US. The TSA will enable the transfer of sensitive US technologies for use in the launch vehicles, and imposes obligations on New Zealand regarding the secure use and management of those technologies. The establishment of a space launch industry in New Zealand also has the potential to create national security and foreign relations benefits. More widely, it will enable New Zealand to play a more active role in promoting the responsible use of space alongside likeminded nations at a time when changes in the international regulatory environment are needed in response to the rapidly evolving commercial sector.

15 The need for a domestic regulatory regime for space activities was precipitated by the need to ensure we meet our international obligations as a launch state (including United Nations space treaties as well as the TSA), and to manage safety and national security issues arising from frequent launches. In November 2015, Cabinet agreed to develop a

1 A report by Sapere on the potential economic benefits of the development of a commercial space launch industry in New Zealand estimates that Rocket Lab could contribute between $750 million to $1,550 million of value add to New Zealand over 20 years. This includes the downstream effects of New Zealand industries having easier access to satellite technologies.

new regulatory regime to enable commercial space launches from New Zealand (Cab-15-Min 0274 refers).

16 The development of the legislation has highlighted the need for a more comprehensive and coordinated space policy capability to help government balance commercial, wider economic, national security, foreign policy and other interests. To address this, Cabinet directed that MBIE in consultation with key agencies to report back to Cabinet with further advice on space policy and space agencies by the end of March 2016 (Cab-15-Min 0274 refers).

The scope of space policy

Space policy encompasses all of our interests in space, including space launches, satellites and satellite applications and similar applications undertaken at lower altitudes by payloads carried by aircraft such as balloons

17 Space is of great importance to modern life and the costs of accessing space are falling rapidly. Advances in technology have enabled the development of very small satellites and lower-cost launches with the ability to carry multiple satellites into space. Larger fleets of smaller satellites are operating with greater capability and these developments are creating opportunities for a greater number of government and private customers to take advantage of satellite applications.

18 As a result, we are seeing a significant increase in the number of commercial satellites being launched and a continued reduction in the average satellite mass. A key driver of this is the growing popularity of nano/microsatellites (satellites less than 50kg) for civil and commercial use. In 2014, 158 nanosatellites were launched globally (an increase of around 72% compared to 2013). One market assessment predicted that the number of small satellites launched each year from 2014 to 2020 would continue to show steady growth reaching 410 to 543 satellites a year by 2020 (a total of 2,000 to 2,750 satellites over the period).[2]Rocket Lab is at the forefront of this business in providing dedicated launches for small satellites (rather than having them as secondary payloads on the launches of bigger satellites).

19 New Zealand has a well-established (but still developing) interest in satellites and their applications. Satellites typically carry out a few basic functions: remote sensing, communications, global navigation, broadcasting, national defence, manned spaceflight support and research. Some of these functions have a very wide and increasing range of applications. For example, remote sensing satellites are used for weather observation, land-use monitoring, resource management, climate change monitoring, military surveillance and mapping, amongst other things. Communications satellites provide internet access, television, telephone and other data relay services; some are configured as intelligence collectors.

20 The uses of navigation satellites for aircraft, shipping and road vehicle navigation and control systems and precise terrestrial location information are well known. Less familiar, but no less essential, is the use of the precision time-synchronisation systems these satellites incorporate to facilitate the accurate clock reference of computer networks used for commercial services such as banking and stock-exchange transactions, and

2 Spaceworks' 2015 Small Satellite Market Observations; Spaceworks' 2014 Nano/Microsatellite Market Assessment. Projections are based on announced launch intentions, market research and qualitative/quantitative assessments.

critical national infrastructure services such as electricity networks. Other functions may be developed in future.

21 Other systems, including balloons and certain types of aircraft operating at very high altitudes (from about 100 kilometres down to the normal operating altitudes of aircraft – also known as "near space") may carry out similar functions to those of satellites in the future. Compared to satellites these have both advantages and disadvantages that make them more or less suitable for the various applications described above. The use of vehicles operating at these altitudes for these applications is still developing, and military and civil utilisation of this zone is increasing with the consequent need to address issues such as overflight of New Zealand territory, national security, and safety. To enable New Zealand to be well positioned to control future activities in this area, this paper proposes that the scope of space policy include certain activities at very high altitudes. When I report back to Cabinet on the proposed space activities Bill, I will recommend that very high altitude activities are included within the scope of the legislation.

Space policy principles and guiding objectives

22 New Zealand is seeking to facilitate the development of a safe, secure, responsible and sustainable commercial space launch industry. The establishment of a space launch industry creates a strategic opportunity for New Zealand to build our capabilities and expertise in the space sector and to apply space technologies (e.g. advanced materials, navigation and guidance systems and rocket propulsion) to a range of other domestic industries. It also creates the potential for New Zealand to design, build and have satellites in space.

23 The fast pace of space technological development and the increased number of players is creating a challenging and evolving international environment. Other countries such as Australia and the UK are currently re-examining aspects of their legal and policy frameworks to ensure that their current provisions strike the right balance between encouraging innovation and industry development in the use of space, managing the risks and vulnerabilities created by a more congested and contested space environment and managing the associated government liabilities arising from international treaty obligations.

24 The approach that New Zealand is taking to space policy is informed by developments in likeminded countries which are grappling with similar issues. Officials have begun to establish relationships with international space experts and space policy and regulatory agencies in the UK, US and Australia. However, we cannot simply wait for international consensus to develop on all issues. New Zealand's space policy will reflect our unique circumstances as an emerging space faring nation and as a niche player in the rocket launch industry.

25 The principles that are relevant to space policy were set out in the November Cabinet paper, A Regulatory Regime to Enable Space Launches from New Zealand (Cab-15-Min 0274 refers). These principles are:

- Supporting New Zealand's economic development interests, through providing a comprehensive but flexible policy and regulatory framework to achieve safe and secure launches while supporting industry development and innovation;
- Supporting New Zealand's national security interests and international security partnerships through reducing or removing the current security risks a New

Zealand-based space launch industry poses, mitigating the risks to New Zealand's security that result from other actors' behaviour in space, strengthening security co-operation including with other space-capable states, and providing more opportunities to improve New Zealand's and our partners' defence force effectiveness;

- Managing the Crown's interests (including foreign policy and security interests), through support for the exercise of New Zealand sovereignty, managing the Crown's exposure to liability risk, providing a robust compliance/oversight regime and fulfilling international treaty obligations; and

- Consideration of a New Zealand position on broader space security issues, including norms of responsible behaviour in space, the possible weaponisation of space, self-defence in space, and the risks of debris in Earth orbit.

26 In support of these principles, the following policy objectives set out the key aims that New Zealand's space policy shall seek to address:

- Facilitate the development of a safe and responsible space industry including managing effects on Earth, in space and on other users;

- Promote the use of satellite and very high altitude vehicle applications;

- Ensure the equitable, efficient and sustainable access to satellite orbits and radio spectrum resources used for space services;

- Preserve and advance New Zealand's position in space and access to space capabilities;

- Ensure New Zealand's international rights and obligations in the use of space are met and that the Government's liabilities as a launching state are managed adequately; and

- Enhance and protect national security.

27 These objectives will be used to guide the development of New Zealand's space policy. I propose that the lead agency for space policy report back to the responsible Minister with further advice on New Zealand's space policy by October 2016.

28 We have limited understanding about the extent to which different New Zealand industries and sectors are using or planning to use satellites and space technologies or what the opportunities are to extend the use of these applications in New Zealand. Improving our knowledge of this will enable us to identify opportunities for economic growth and innovation, and identify where government can facilitate the uptake and use of these new technologies. I propose that information on the potential for satellite and very high altitude applications in New Zealand form part of the October space policy report back.

Space agencies: functions and form

A space policy agency needs a broad mandate and leadership role supported by an explicit coordination mechanism to integrate the multiple interests in space policy

29 New Zealand has a few pockets of space policy expertise, e.g. the Radio Spectrum policy team at MBIE and satellite applications in the NZDF, LINZ and some Crown Research Institutes but no single agency is currently responsible for advancing New Zealand's space objectives or for coordinating advice across all policy agencies with an interest in space. Given the broad scope of space policy, the required knowledge and expertise is unlikely to reside solely in one organisation. However, it is desirable that there be a lead agency to provide a central point of contact within government on space policy, to coordinate advice across multiple policy dimensions, and to assume the substantive policy lead where there are currently gaps (e.g. the economic development dimensions of space policy; the regulatory dimensions of space policy including development and maintenance of domestic space law; and contributing to the development of international norms and rules associated with the use of space).

30 Decisions on the lead agency should take into account the functions that need to be carried out as they relate to both space policy and implementation.

Space policy functions

31 In order to lead effectively across the multiple policy dimensions associated with space, a lead policy agency would have the following functions:

- Policy advice (including research, monitoring and evaluation, and strategic planning). It is proposed that the authorisation of space launches, payloads and satellites be located with the policy function. A key component of the authorisation function will be an ongoing risk assessment and advice on how the government can manage its liability associated with being a launching state in the context of a rapidly evolving commercial market, and the development of strategies to manage this liability and pass it on to the space launch and payload operators;

- Developing and maintaining (jointly with MFAT) New Zealand's international relationships and New Zealand's international obligations for space[3]. (Defence will continue to manage military-to-military relationships); and

- Domestic coordination of information and advice across the various policy dimensions. This is likely to be a significant part (e.g. up to 80%), of the policy advice function.

32 The lead agency would have objectives of building on our existing knowledge, integrating the diverse interests of government agencies, and leveraging international resources to achieve the capabilities we need. Consistent with this, I seek Cabinet approval for:

- **A space policy agency with a broad mandate and clear leadership role**. While the lead space policy agency would have overarching responsibility for the totality of New Zealand's interests, in practice we could contemplate one or two centres of excellence based around commercial applications of space on the one hand and defence/security applications on the other. There would need to be explicit and effective coordination between the two centres of excellence.

- **A domestic coordination committee**. An explicit function of the lead agency for space policy will be the coordination of information and advice across domestic

3 A list of UN space treaties and international institutions is attached in Annex 1.

agencies. This could comprise a cross-agency senior officials group, e.g. for linkages to the New Zealand Intelligence Community. The host agency for space policy would provide a secretariat for the coordination committee. Further work will be needed to work out practical systems and structures to manage the production of advice, including from intelligence and security agencies.

Functions within the scope of implementation

33 The draft legislation establishes the following regulatory functions:

- Authorisation of space launches, payloads and satellites;
- National security considerations;
- Registration of space objects;
- Monitoring and enforcement;
- Accident investigation;
- Designation of secure areas;
- Issuing of security cards; and
- Education, information and guidance for industry participants.

34 These functions could be conducted or co-ordinated through the space policy agency (i.e. MBIE or the Ministry of Transport). As the authorisation functions are closely associated with the policy grounds for assessing a license application, the proposal is to keep these functions with the policy function. The powers associated with these functions will be assigned through the legislation to the appropriate entity. For example, while the lead agency would be responsible for providing advice on the granting of a license to the responsible Minister, the power to issue, revoke or suspend the licence would reside with the Minister.

35 The agency charged with undertaking authorisations needs to gear up quickly and be highly responsive. In particular, the regulator needs quickly to develop the capability to understand the risks associated with licensing space launches and the operation of space objects, but the expertise required, (e.g. to undertake detailed technical and risk assessments), could be contracted in as needed.

36 The remaining functions listed in paragraph 35 above could be located within an existing regulatory entity but, in practice, the implementation of the new regulatory regime will involve a significant coordination element. For example:

- Accident investigations will be carried out by one or more of the following agencies: New Zealand Police, Work Safe, the Civil Aviation Authority, Maritime New Zealand or the Transport Accident Investigation Commission;

- The New Zealand Intelligence Community[4] has the requisite expertise and mandate to evaluate matters relevant to national security. The New Zealand Intelligence Community will assist with risk-based security assessments (Protective Security Requirements) for companies participating in the space industry (whether conducting launch activities or developing space applications); and

- The Aviation Security Service has capabilities in issuing security cards.

4 The New Zealand Intelligence Community includes the NZSIS and GCSB as well as parts of DPMC, NZDF, MoD, MFAT and others as necessary.

37 The question of which agency carries out the enforcement functions will be resolved through the development of an implementation process and will be addressed in subsequent reports to Cabinet.

Candidate agencies for lead space agency

38 This paper seeks a decision on which agency should be responsible for administering the proposed space legislation. My assessment is that the nature and likely scale of activities associated with space policy (including administering the new legislation) do not justify the creation of a standalone agency. I propose that these functions be located with an existing agency based on the best fit with mandate and capability.

3 The two most likely lead agencies for space policy are the Ministry of Transport or MBIE. Officials have also considered the NZDF but concluded that the economic development objectives do not fit well with that agency's mandate and focus on national security. However, the NZDF and Ministry of Defence will maintain and develop specialist expertise around space policy for national security and military applications. The New Zealand Intelligence Community will also maintain a role in assessing the implications of space policy and activity from a national security standpoint.

39 The primary regulatory functions associated with the authorisation of space launches, payloads and satellites could be carried out by MBIE or the Ministry of Transport. However, as noted above, in practice, there will be different regulatory agencies involved in different aspects of the regulation of space activities.

40 The State Services Commission has developed guidance on the preferred location for policy functions where the choice is between agencies of the same type. The guidance incorporates a set of criteria which are weighted according to their relative importance. The criteria that are most relevant to the space policy functions include:

- **Strategic fit:** compatibility with the existing agency's present role and functions,
- **People / capability**: whether the agency has, or could acquire, what it would need now and in the future to deliver the interventions and outputs which best contribute to the outcomes government is seeking; and
- **Implementation**: this includes consideration of whether the expansion would be cost effective without jeopardising the efficient, effective and economical management of the activities of the host agency.

41 MBIE and Ministry of Transport officials have undertaken a joint assessment of the preferred location using these criteria. Their conclusion is that the assessment criteria are broadly neutral in terms of which agency is the preferred location and that the choice for Ministers comes down to a judgement about the following two matters:

- **Strategic fit:** MBIE's Radio Spectrum team has expertise in radio spectrum policy and radio spectrum management, licensing and compliance, which is applicable to satellites and satellite licensing. MBIE is also the government's lead advisor on growth and innovation policies. In both Australia and the United Kingdom (UK) the policy lead agency is hosted by agencies with substantially

similar responsibilities to those of MBIE.[5] It is however ultimately a call for Ministers as to whether the host agency should have a greater focus on economic development/innovation (MBIE) or transport safety and system resilience (Ministry of Transport).

- **Implementation:** MBIE is the larger policy agency and more able to marshal the resources required to develop the required policy capability. MBIE has been coordinating the development of the proposed regulatory regime for space activities and is more likely to be able to gear up and implement quickly.

42 I have discussed the preferred location for the space policy functions with the Minister of Transport, Hon Simon Bridges. The Ministry of Transport fulfils the role of regulation and investing for economic goals in the transport system. However, space launches and space applications have a broader economic development and innovation focus that extends beyond transport and into many areas of the economy and society. Through coordinating the development of the proposed space legislation, MBIE has begun to develop space policy expertise and is well placed to maintain the existing momentum in the development of the regulatory regime.

43 This leads us to conclude that MBIE should be the lead space policy agency for an initial period of three years. The proposed Space Activities Act will be reviewed three years after it is enacted. This review will provide a further opportunity for the government to consider which agency is best placed to host the lead space policy functions over the longer term taking into account developments in international space law and space policy and any changes to the civil aviation regime.

Resourcing implications

44 Two general principles apply to how government agencies resource policy and regulatory functions. These are:

- Crown funding for policy work; and
- Third-party funding for regulatory work (this is consistent with the principle that those who benefit from the regulatory activity should pay for it).

5 The UK Space Agency is an executive agency of the Department for Business, Innovation and Skills, and has responsibility for leading UK civil space policy, regulating UK civil space activities, and ensuring the UK meets international treaty obligations. In Australia, the Department of Industry, Innovation and Science is the central point of contact and coordination for the Government's involvement in national and international civil space activities which are administered by a range of agencies.

45 The Treasury guidelines for setting charges in the public sector identify a range of objectives for cost-recovery charges including reducing reliance on funding from general taxation; and dealing equitably with the tax payer, those who benefit from the service, and/or those whose actions give rise to it.

46 These general principles have been applied to the proposed space policy and space regulatory functions identified above to provide an initial estimate of the resourcing implications of the new functions and how these will be met. The detailed analysis is attached in Annex 2. In summary, this analysis supports the following proposals:

- Once the proposed space legislation is enacted, licensing fees on industry participants will be used to recover the costs associated with the regulatory functions (An implementation work stream has been established to develop the approach to approving and monitoring Rocket Lab's launches and payloads in 2016 and developing detailed procedures for approving and monitoring rocket launches and payloads once the Act comes into force. This work will provide a baseline estimate of the costs which will be recovered through license fees).

- Until the legislation is enacted, the costs associated with developing and implementing the regulatory regime will be absorbed within agency baselines as the process involves a degree of capability building by agencies and there are public good reasons for meeting these costs from Crown funding.

- The costs associated with developing space policy will be met from Crown funding as is usual for funding government policy advice. s 9(2)(f)(iv) Should MBIE continue to be the lead agency, it will address any budgetary pressures associated with taking on these functions as part of its next four year plan in the 2017 Budget. If the Ministry of Transport took on these functions it would also need to address any budgetary pressures in the 2017 Budget.

Consultation

47 The following agencies have been consulted: The Ministry of Foreign Affairs and Trade, the Ministry of Transport, the New Zealand Defence Force, the Ministry of Defence, the Department of the Prime Minister and Cabinet, the New Zealand Police, the New Zealand Security Intelligence Service, the Government Communications Security Bureau, the State Services Commission, the New Zealand Treasury and Land Information New Zealand.

Financial Implications

48 There are financial implications associated with the development of a space policy and space regulatory capabilities. The general resourcing principles adopted in this paper are that the costs of policy work should be met through Crown funding and the costs of regulatory work should be met by the parties who benefit from the regulatory activity. The set up costs associated with developing the new regulatory regime will be absorbed by agencies until the new legislation is passed. An implementation work stream has just been established which will identify the resourcing implications associated with the new space regulatory functions. Further advice on this will be provided to Cabinet as part of a subsequent paper seeking approval for regulations to enable cost recovery of the regulatory functions. With respect to the costs of the new space policy functions, I

propose that the lead agency for space policy address any budget implications in 2017 Budget.

Human Rights

49 N/A

Legislative Implications

50 This paper does not have legislative implications. Final policy approvals for the proposed legislation will be sought in a subsequent Cabinet paper expected to be submitted to the Cabinet Committee on Economic Growth and Infrastructure in April 2016.

Regulatory Impact Analysis

51 The RIA requirements do not apply to this paper as it relates to the internal governance arrangements for space policy and for the administration of the proposed space activities legislation.

Publicity

52 No publicity is planned in relation to the contents of this paper. However, once the TSA negotiations have been concluded, I propose to issue a media statement noting that New Zealand is developing legislation to enable safe, secure, responsible and sustainable space launches to take place and providing information to the public about their opportunity to submit on the content of the Bill.

Recommendations

The Minister for Economic Development recommends that the Committee:

1 **Note** that Rocket Lab's intention to establish a commercial satellite launch business in New Zealand has meant that New Zealand is rapidly developing a space policy and regulatory capability to meet our obligations as a launch state, and manage the safety and security issues arising from frequent launches;

53 **Note** that a space policy capability will enable New Zealand to capitalise on emerging economic opportunities, advance our interests in space, manage international obligations, and assist in developing international arrangements to ensure the responsible use of space;

54 **Note** that in December 2015 Cabinet approved the high-level design of a regulatory regime to enable space launches from New Zealand, with legislation to be enacted during 2016, and directed officials to report back with further advice on the scope of space policy and on space agencies (CAB 15 Min 0274 refers);

55 **Note** the scope of space policy encompasses the totality of New Zealand's interests in space including economic development, national security, foreign policy, safety and the environment and that it includes space launch, satellites, satellite applications and technologies operating at very high altitudes;

56 **Note** the proposed guiding objectives for space policy are to:

- Facilitate the development of a safe and responsible space industry including managing effects on Earth, in space and on other users;
- Promote the use of satellite and very high altitude vehicle applications;
- Ensure the equitable, efficient and sustainable access to satellite orbits and radio spectrum resources used for space services;
- Preserve and advance New Zealand's position in space and access to space capabilities;
- Ensure New Zealand's international rights and obligations in the use of space are met and that the Government's liabilities as a launching state are managed adequately; and
- Enhance and protect national security;

57 **Note** that in order to meet the objectives in recommendation 5 above, a lead space policy agency will have the following functions:

- Policy advice (including research, information gathering, monitoring and evaluation, and strategic planning). The policy function also includes ongoing risk assessment and advice on how the government can manage its liability associated with being a launching state in the context of a rapidly evolving commercial market, and the development of strategies to manage this liability and pass it on to the space launch and payload operators;
- Develop and maintain (jointly with MFAT) New Zealand's international relationships and international obligations for space. (Defence will continue to manage military-to-military relationships); and
- Domestic coordination of information and advice across the various policy dimensions. This is likely to be a significant part (e.g. up to 80%), of the policy advice function;

58 **Note** the draft legislation establishes the following regulatory functions:

- Authorisation of space launches, payloads and satellites;
- National security considerations;
- Registration of space objects;
- Monitoring and enforcement;
- Accident investigation;
- Designation of secure areas;
- Issuing of security cards; and
- Education, information and guidance for industry participants;

59 **Agree** that the nature and scale of the proposed space policy and regulatory functions does not justify the establishment of a standalone agency;

60 **Agree** that the space policy functions be located within an existing agency based on the best strategic fit and alignment with existing mandate and capability;

61 **Agree** that the authorisation functions are closely associated with the policy grounds for assessing a license application and that these functions should be kept with the lead space policy agency;

62 **Agree** that a domestic cross-agency coordination committee is established to integrate space policy advice across the range of agencies with space interests, and that the space policy agency will provide a secretariat for the committee;

63 **Note** that the two candidates to lead space policy are the Ministry of Transport or the Ministry of Business, Innovation and Employment (MBIE);

64 **Note** that either MBIE or the Ministry of Transport could be the primary agency for the space regulatory functions, but that in practice different regulatory agencies will be involved in different regulatory functions and this is being worked through as part of the implementation work stream that MBIE has commenced;

65 **Agree** that space launches and space applications have a broad economic development and innovation focus that extends into many areas of the economy and society, and that this, along with the need to maintain momentum in the development of the proposed space legislation, means that MBIE is best placed to be the lead space policy agency for an initial period of three years.

66 **Agree** that the location of the lead space policy agency will be reconsidered as part of the required review of the proposed Space Activities Act (three years after the legislation is enacted) and that the review will take into account developments in international space law and space policy, as well as any changes to the civil aviation regime

67 **Direct** the lead space policy agency to report back to the responsible Minister with advice on:

- A domestic coordination mechanism to provide Ministers with integrated and cohesive advice on space policy (June 2016);
- A New Zealand space policy, including an assessment of opportunities for New Zealand from satellite applications and a strategy to exploit their utilisation (October 2016);

68 **Note** that when the proposed legislation is enacted, licensing fees on industry participants will be used to recover the costs associated with the regulatory functions;

69 **Agree** that until the proposed legislation is enacted, the costs associated with developing and implementing the regulatory regime shall be absorbed within agency baselines as the process involves a degree of capability building by agencies and there are public good reasons for meeting these costs from Crown funding;

70 **Agree** that the ongoing costs associated with space policy work will be met from Crown funding;

71 **Note** that [redacted] s 9(2)(f)(iv) [redacted] taking on these functions will be addressed as part of that agency's four year plan in the 2017 Budget;

72 **Note** that officials will report to the Cabinet Committee for Economic Growth and Infrastructure in April 2016 to seek final policy approvals to enable the proposed legislation to be introduced into the House in May 2016.

Authorised for lodgement

Hon Steven Joyce

Minister for Economic Development

Annex 1- International Space Treaties and Institutions

UN Space Treaties and Conventions	Responsible body	Description	Radio frequency spectrum Treaties and Conventions	Responsible Body	Description
Outer Space Treaty	United Nations Committee on the Peaceful Use of Outer Space (COPUOS). New Zealand is not a member of COPUOS. The Secretariat for COPUOS is United Nations Office for Outer Space Affairs (Vienna)	Principles governing the activities of states in the exploration and use of outer space, including the moon and other celestial bodies. New Zealand has ratified this treaty.	International Radio Regulations (Treaty)	International Telecommunications Union (ITU). The ITU is a UN specialised body. The Secretariat for the ITU is in Geneva.	Manages the international radio-frequency spectrum and satellite orbits resources. New Zealand is a member and ratified the Treaty in 2014.
Liability Convention	COPUOS	Convention on International Liability for Damage Caused by Space Objects. New Zealand has ratified this treaty.	ITU Constitution and Convention	ITU	Coordinates efforts to eliminate harmful interference between radio stations of different countries and to improve the use made of the radio-frequency spectrum for radio communications services and of the geostationary-satellite and other satellite orbits.
Registration Convention	COPUOS	Convention on Registration of Objects Launched into Outer Space. New Zealand has not yet ratified this treaty.			
Rescue Convention	COPUOS	Agreement on the Rescue, the Return of Astronauts and the Return of Objects Launched into Outer Space New Zealand has ratified this treaty.			
Moon Treaty	COPUOS	Agreement Governing the Activities of States on the Moon and Other Celestial Bodies. New Zealand has not ratified this treaty.			

Non-UN Agreements: International Telecommunications Satellite Organisation. Promotes public satellite communications. NZ is a member.

Annex 2: Proposed space policy and space regulatory functions and resourcing implications

Policy functions	Activities	Agencies	New / expanded functions	Activities to be carried out before Rocket Lab's first test launch	Resourcing implications (short-term / long term)
Policy advice. This includes: environmental scanning; research; stakeholder engagement; development of advice (e.g. in relation to managing the government's liability as a space launching state, and the economic opportunities associated with satellite applications); strategic planning; monitoring and evaluation.	Early activities will be the development of a New Zealand space policy, and putting in place the information systems and processes necessary to undertake a review of the regulatory regime in three to five years (as will be required by the legislation).	The lead space policy agency will have primary responsibility for these activities.	New	Policy development activities related to the development of the new regulatory regime are being undertaken by MBIE. Going forward this work will be led by the responsible agency for space policy.	The costs of policy activities associated with the design of the regulatory regime are being met from within MBIE's baselines. Once the legislation is passed, it is estimated that a policy capability of three to five FTEs will be required s 9(2)(f)(iv) The requirement for new Crown funding to meet these costs will depend on which agency is assigned responsibility for space policy and the extent to which resources can be provided through departmental secondments.
Develop and maintain New Zealand's international relationships and obligations for space.	As a launching state New Zealand will need to strengthen its engagement in international space affairs. This is likely to include more active engagement with the United Nations Office for Outer Space Affairs and potentially membership of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) the administrator of five international space treaties. It is likely to include participating in discussions with other like-minded nations on space policy matters.	The lead space agency will have the primary lead with support from MFAT	Expanded	None. New Zealand will need to accede to the Registration Convention but this does not need to happen before the first test launch.	There are three primary COPUOS meetings in Vienna a year. Travel costs are likely to be in the order of $50,000 a year (but there may be scope to combine some of this travel with other scheduled trips). There are also ITU treaty-making meetings in Geneva and meetings for coordination, negotiation and development of international regulations concerning the use of space orbits and satellite spectrum. MBIE is already funding the membership fee for participation of NZ as Member State. There are three meetings per year (costing $50,000 a year).

Domestic coordination	Providing the secretariat to an inter-agency senior officials group which will comprise the domestic coordination committee.	The lead space policy agency will have this function.	New	None	The resourcing implications are likely to be similar to other policy coordination functions such as coordinating the Business Growth Agenda senior officials' groups, and will be managed from within the lead space policy team's budget.

Regulatory functions	**Activities**	**Agencies**	**New or expanded functions**	**Activities to be carried out before the first test launch**	**Resourcing implications (short-term/long-term)**
Authorisation function: space launch, payloads and satellites, and national security risk assessment	The development and administration of a licensing regime	The authorisation function will be located with the lead space policy agency. The New Zealand Intelligence Community will provide advice in relation to national security	New	Yes	For the initial test launch the costs of these functions are being met from within agency baselines. Once the legislation is passed, the costs associated with the authorisation function will be recovered through a licence fee. However, it is likely to be impractical and inequitable to recover all of the set up costs of establishing the authorisation regime from Rocket Lab and some of these costs need to be met through Crown funding.
Registration of space objects	Collecting and keeping a record of information about the date/time of launch, the general functions of the payloads/satellites and their orbital parameters.	Space regulatory agency	New	Yes	Same as above
Monitoring and enforcement	Ensuring compliance with New Zealand's domestic space law, our obligations under international treaties and bilateral agreements. Activities will include assessing information provided by Rocket Lab and its clients and physical inspections of Rocket Lab's premises.	Space regulatory agency with support from New Zealand Intelligence Community	New	None	Same as above

Accident investigation	Activities required for New Zealand to meet its domestic statutory responsibilities and to comply with the TSA obligations	Depends on the nature of the accident, but likely to involve one or more of Police, Work Safe New Zealand, Transport Accident Investigation Commission and Maritime NZ	New in relation to space launch accidents	None	Costs of response and accident investigation likely to be met through general taxation
Designation of secure areas	Designating certain areas of Rocket Lab's facilities as secure areas with restricted access (To comply with the TSA and meet New Zealand's security requirements)	Space regulatory agency	New	Yes	Same as for authorisation function
Issuing of security cards	Undertaking security checks and issuing security cards to control access to secure areas (To comply with the TSA and meet New Zealand's security requirements)	Space regulatory agency	New	Yes	Same as for authorisation function
Education, information and guidance	Provision of guidance about New Zealand's regulatory regime for launching space objects. This is likely to include the development of a website as well as seminars and a 0800 number for queries	Space regulatory agency	New	None (although we will be providing advice and information to Rocket Lab)	Same as for authorisation function