MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

TE TAI ŌHANGA
THE TREASURY

Joint Report: Proposed Weather Forecasting System Review and Options

Date:	22 March 2023	**Report No:**	T2023/124 MBIE: 2223-2938
		File Number:	SE-2-140-1

Action sought

	Action sought	Deadline
Minister of Finance (Hon Grant Robertson)	**Agree** to commission a review that considers the optimal arrangements in the weather forecasting system and **agree** the broad scope.	4 April 2023
Associate Minister of Finance (Hon Dr Megan Woods)	**Note**	None
Minister of Transport (Hon Michael Wood)	**Agree** to commission a review that considers the optimal arrangements in the weather forecasting system and **agree** the broad scope.	4 April 2023
Minister of Research, Science and Innovation (Hon Dr Ayesha Verrall)	**Agree** to commission a review that considers the optimal arrangements in the weather forecasting system and **agree** the broad scope.	4 April 2023
Associate Minister of Finance (Hon David Parker)	**Note**	None
Minister for State Owned Enterprises (Hon Dr Duncan Webb)	**Agree** to commission a review that considers the optimal arrangements in the weather forecasting system and **agree** the broad scope.	4 April 2023

Contact for telephone discussion (if required)

Name	Position	Telephone		1st Contact
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Minister's Office actions (if required)

Return the signed report to Treasury and the Ministry of Business, Innovation and Employment.

Note any feedback on the quality of the report	

Enclosure: No

Executive Summary

The current setting in the weather forecasting system may not optimally support New Zealand to be well positioned to protect public safety, respond to climate change and the increased frequency and impact of severe weather. The former Minister for State Owned Enterprises requested the Treasury to engage with policy agencies and provide advice on a potential review of whether the current weather forecasting market structure is fit for purpose.

Officials are seeking agreement from Ministers to commission a review that considers the optimal structural configuration of Meteorological Service of New Zealand (MetService) and the National Institute of Water and Atmospheric Research (NIWA) and appropriate arrangements in respect of weather data access.

The current configuration of MetService and NIWA is inefficient, and risks are becoming more significant in the context of climate change

This review is being recommended on the basis that officials are now seeing risks materialising from the separation of NIWA and MetService. Risks include loss of collaboration opportunities, duplication of capability and investments, and disconnection between research on climate change and the operation of weather forecasting in New Zealand. Both MetService and NIWA have indicated they welcome a review of the current arrangements in the forecasting system.

The current system arrangements limit the ability to integrate climate science, forecasting, hydrology, and coastal hazards to provide a cohesive understanding of hazards. MetService and NIWA seem unable to collaborate under the current market settings due to competitive tensions and competition law.

MetService and NIWA have both developed forecasting capabilities which have previously resulted in confusing messages being provided to the public. MetService has expressed concerns about the impact that conflicting narratives could have on public safety outcomes during extreme weather events.

New Zealand's access to observational weather data is more restricted compared to other countries due to the commercial drivers of MetService and NIWA. In the context of climate change and the increasing need for freely available real-time data, the benefits for New Zealand of limiting access are becoming less clear. Officials propose that the review considers access to weather data if structural changes to the entities are recommended.

Options for the scope of the review

This report provides Ministers with a set of options to consider as to the scope of the review.

1. Maintain the status quo;
2. Undertake a review focused on changes in entities' settings; or
3. Undertake a review focused on changes in entities' settings and appropriate arrangements for access to weather data.

Officials believe changes in the system need to be considered and recommend the scope of the review explores both the optimal structural settings and access to weather data (Option 3 in the report). Any change has inherent risks and, depending on the extent of the transformation, could impact the system's performance during the change process.

If Ministers agree to a review, we intend to draw from previous reviews which canvassed these and other risks. This would be done with a view to determining what New Zealand needs from its weather forecasting capability now and into the future, in light of the material impacts we are seeing as a result of climate change.

The relationship between MetService and NIWA has been the subject of media attention and a review is likely to result in further media enquiries and be of public interest.

Wider science system focused on collaboration

Various related government initiatives focused on increased collaboration within the science system are underway. MBIE is currently leading *Te Ara Paerangi – Future Pathways* (TAP), a programme focused on how to best position New Zealand's Research, Science and Innovation (RSI) system for the future. The TAP work has noted the science system impacts of the problems identified in this report, and that they relate to other problems in the wider RSI system that TAP is also seeking to address. We note that the proposed review would not duplicate any work undertaken in the TAP programme and would represent a practical advancement of the TAP change programme.

Next Steps

If Ministers agree to commission a review, officials will provide advice on the proposed Terms of Reference (ToR), and timeline. Consultation with stakeholders would be undertaken during the drafting of the ToR. Based on Ministers' agreement on the ToR, officials would appoint an external provider to conduct the review. We expect the final report would be delivered before the end of 2023.

Recommended Action

a **agree** to commission a review that considers the optimal arrangements in the weather forecasting system to meet future weather-related challenges particularly in the context of climate change. This includes optimal structural configuration with respect to MetService and NIWA.

Agree/disagree Minister of Finance	*Agree/disagree* Minister of Research, Science and Innovation
Agree/disagree Minister of Transport	*Agree/disagree* Minister for State Owned Enterprises

b **agree** the terms of reference will be drafted based on Option 3 - *Changes in entities settings and appropriate arrangements for access to weather data* (Officials' recommendation)

Agree/disagree Minister of Finance	*Agree/disagree* Minister of Research, Science and Innovation
Agree/disagree Minister of Transport	*Agree/disagree* Minister for State Owned Enterprises

OR

c **agree** the terms of reference will be drafted based on Option 2 - *Changes in entities settings*

Agree/disagree
Minister of Finance

Agree/disagree
Minister of Research, Science and Innovation

Agree/disagree
Minister of Transport

Agree/disagree
Minister for State Owned Enterprises

d **note** the review will be funded within the Treasury and MBIE's existing baseline funding available for strategic reviews.

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The Treasury

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MBIE

Hon Grant Robertson
Minister of Finance

Hon Dr Megan Woods
Associate Minister of Finance

Hon Michael Wood
Minister of Transport

Hon Dr Ayesha Verrall
Minister of Research, Science and Innovation

Hon David Parker
Associate Minister of Finance

Hon Dr Duncan Webb
Minister for State Owned Enterprises

Treasury Report: Proposed Weather Forecasting System Review and Options

Purpose of Report

1. This report seeks Ministers' agreement to commission an external review to consider the optimal arrangements in the weather forecasting system, including the settings of Meteorological Service of New Zealand (MetService) and National Institute of Water and Atmospheric Research (NIWA), and any appropriate changes on access to weather data.

Weather forecasting market: context and background

2. We are seeing risks materialising from the existing weather forecasting system arrangements with respect to MetService and NIWA, which could impact New Zealand's weather forecasting and climate services capability. We consider that the current settings do not optimise New Zealand's climate change and weather forecasting capability, infrastructure, data and are not well positioned to protect public safety, respond to climate change and the increased frequency and impact of severe weather events.

3. In December 2022, the former Minister for State Owned Enterprises requested the Treasury to provide advice on a potential review of whether the current weather forecasting market structure is fit for purpose. This was based on advice provided by the Treasury and issues raised in correspondence from MetService about a research-to-operations pathway. MetService's concerns centre on the fact that over time, competition between MetService and NIWA has increased and they are unable to collaborate as originally envisaged.

4. This has resulted in two wholly Crown-owned companies operating in a single system and providing overlapping services in a self-focused way. Both companies are proposing to invest in similar infrastructure, systems and capability. While each entity is trying to optimise its own contributions and results, this may be suboptimal from a wider system perspective. This situation can result in conflicting advice and has potential public safety risks during severe weather events, in addition to inefficient deployment of resources and investment.

5. Weather and climate science has advanced and the distinctions between operational forecasting and climate science are less clear. Officials are concerned that the current system arrangements are impeding the ability to integrate climate science, forecasting, hydrology, and coastal hazards to provide a cohesive understanding of hazards. This is explored further in the Problem Definition section of this report.

6. The weather forecasting market in New Zealand is an open market and there are no regulatory restrictions for new competitors to enter. MetService and NIWA own most of the infrastructure required for a weather data collection network. The infrastructure is costly to set up and there are high economic barriers for new entrants to the market. The customisation of weather data is a competitive market with both local (such as Weather Watch) and global private sector service providers (such as the Weather Company – an IBM subsidiary).

Background to the formation of MetService and NIWA

7. In 1991 New Zealand's scientific institutions were restructured. As a result, in 1992, the New Zealand Meteorological Service was split into forecasting and research.

8. MetService was established as a State-owned enterprise (SOE) to leverage its expertise in weather forecasting to support its operations, reduce the cost of weather services to taxpayers, and pay dividends to the Crown.[1]

9. NIWA was established as a Crown Research Institutes (CRI) to perform the weather research function. CRIs were established to undertake scientific research for the benefit of New Zealand and incentivised to develop commercial revenue streams and reduce the reliance on core Crown funding and contestable research funding[2].

10. NIWA's purpose is to enhance the economic value and sustainable management of New Zealand's aquatic resources and environments, to provide an understanding of climate and the atmosphere and increase resilience to weather and climate hazards to improve the safety and wellbeing of New Zealanders.

11. In the late 2000's NIWA's strategy shifted towards developing a commercial weather forecasting business and started to actively compete with MetService. In 2013, NIWA launched its weather division and in 2015 partnered with the United Kingdom MetOffice to develop weather and climate forecasting systems. NIWA's high-performance computing capability has improved its ability to generate weather forecasts.

12. NIWA and MetService have been operating according to the expectations and legislative requirements under the respective CRI and SOE models. While CRIs do not have the same commercial mandate as SOEs they are expected to be financially sustainable. Officials consider the source of the problem is not an individual company or the models they operate under but the setting of these companies within the current system.

Previous reviews identified problems with the separation of MetService and NIWA

13. In 2001 a review was undertaken to consider if there were any material risks to the long-term future capability of New Zealand's weather forecasting and climate services arising from the continued separation of MetService and NIWA. The panel found that in the short-term there was low risk from maintaining two separate entities, but risk was elevated in the longer term.[3] At the time, shareholding Ministers encouraged closer collaboration between the entities.[4]

14. In 2006, another review was conducted given the desired level of collaboration between the entities did not materialise. The objective of the review was to identify the combination of organisational and purchasing arrangements for New Zealand's national weather and climate functions that was likely to deliver the greatest benefit. The review panel initially recommended a merger, however Ministers agreed to continue with the separation of the two entities with the agreement of a National

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1 Under section 4 of the SOE Act 1986 MetService, as an SOE, has the mandate to operate as a successful business. This includes being as profitable and efficient as comparable businesses that are not owned by the Crown; to be a good employer; and to exhibit a sense of social responsibility.

2 Under the Crown Research Institute Act 1992 (CRI Act), NIWA should operate in a financially responsible manner so that it maintains its financial viability.

3 The panel analysed the risk profile of various capability attributes, based on both probability and impact of each risk materialising, including: operational capability, scientific capacity, societal, economic and business competencies (financial viability, revenue generation, and production efficiency).

4 Recommendations arising from the review included for NIWA to become the preferred supplier of R&D to MetService, MetService to become the preferred commercialization partner of NIWA, and to maintain two common board directors across the two entities.

Objective[5] and the introduction of a Memorandum of Understanding (MOU). A MOU on the scope and processes for ongoing collaboration was signed in 2007 spanning 10 years. The MOU expired without renewal in 2017, as the expected collaboration between the entities did not occur.

15. The most recent review was completed in 2018. This review found that access to observational weather data in New Zealand is more restricted compared with some other countries, and that licence restrictions might be limiting innovation and economic opportunities. The review attributed this to the SOE and CRI models but concluded that the cost of change would likely outweigh any wider benefits for New Zealanders at that time.

Officials support a more integrated approach in the weather forecasting system

16. The previous reviews identified problems associated with the existing system settings for MetService and NIWA. Any future review needs to draw from, and not repeat, the focus of previous reviews.

17. We consider it important that relevant agencies support the review given the range of Crown perspectives and interests, as outlined below.

    a. The Minister of Transport is the responsible Minister under the Meteorological Service Act 1990 and has the role of ensuring the provision of meteorological warning services and the responsibility to designate a service provider for meteorological warning services.

    b. The Minister of Research, Science and Innovation has multiple interests, particularly given their shareholding interest in NIWA and in science to address climate change. However, their main interest is seen through the direction set in TAP, which aligns closely with the direction of the work proposed in this report.

    c. The Minister of Finance is a shareholder of MetService and NIWA.

    d. The Minister for State-Owned Enterprises is a shareholder of MetService.

18. The Treasury and MBIE are supportive of the review. The Ministry of Transport (MOT) is also supportive of the proposed review and its focus on public safety, however due to capacity constraints it is only able to provide limited input into the review. Nevertheless, MOT will still be kept informed and provide input as it develops given its interests in the weather forecasting contract it holds with MetService. MOT has been consulted on this briefing and its comments have been incorporated.

19. The recommendations of the review will also be of interest to other entities such as the National Emergency Management Agency (NEMA). We have shared a copy of this report with NEMA's Chief Science Advisor, and we will consult with them during the development of the Terms of Reference process, should Ministers agree to proceed with the proposed review.

[5] The National Benefit sought was: *Enhanced safety and wellbeing of New Zealanders, protection of property and infrastructure, and economic benefit to the nation, through reliable and timely forecasting of weather, climate and associated environmental events and impacts*.

The current settings of MetService and NIWA are inefficient and could lead to Public Safety risk

Research-to-operations pathway is required in the weather forecasting system

20. There is no clear research-to-operations pathway from NIWA to MetService. Collaboration between the companies under the current market settings is challenging due to competitive tensions and competition law[6]. The Crown provides funding to NIWA for weather forecasting research[7], however there are no incentives to share the outcomes of the research with MetService or any other weather researchers or forecasting providers. Similarly, the investment in infrastructure and the development of weather forecasting models are not shared by either entity.

21. This creates significant inefficiencies and risks for the public and for customers (which are mainly central or local government-related entities). For example, NIWA and other providers of flooding models used by some councils cannot incorporate data from MetService to be adjusted which was an issue during the flooding in Nelson in 2022. [25]

    NIWA has its own hydrology capability, and following the recent severe weather event, NIWA is aiming to develop a business case for a national 24/7 flood impact forecasting service over the coming months.

Conflicting narratives on weather forecasts could lead to Public Safety risk

22. MetService is concerned that competition and media commentary from NIWA during severe weather events may increase risks to public safety through conflicting narratives. The World Meteorological Organisation (WMO) highlights[8] the importance of the 'single authoritative voice' for public safety during hazardous weather events.

23. Through its contract with the Minister of Transport, MetService is designated as the Crown's authorised provider of severe weather warnings, and hence is the 'single authoritative voice' for public information about severe weather in New Zealand. The purpose of this designation is to provide clarity in authorised messaging and minimise confusion amongst the public during severe weather events and ensure warnings comply with the international standards set by the WMO.

Direction of the system needs to focus on collaboration and appropriate arrangements for access to weather data

24. In September 2019, the Commerce Commission opened an investigation into the terms on which competitors can access real-time data of both MetService and NIWA. The investigation was closed in 2021 after MetService and Weather Watch agreed commercial terms for access to data. NIWA did not participate in the arrangement.

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6 Recent changes in the Commerce Act 1986 sections 36, have strengthened the law to prohibit firms with market power from engaging in conduct that substantially lessens competition, regardless of whether they would have done the same thing if they didn't have market power. Review of section 36 of the Commerce Act and other matters Ministry of Business, Innovation & Employment (mbie.govt.nz)

7 MBIE provides $14.3 million to NIWA for developing a better understanding of large-scale weather and climate systems through numerical prediction techniques, monitoring and advanced measurement, e.g., predicting extreme weather events and impacts, climate adaption and mitigation. The platform aims to help communities be more resilient to weather-driven hazards and more able to manage long-term climate change impacts.

8 The WMO's GENEVA DECLARATION 2019: BUILDING COMMUNITY FOR WEATHER, CLIMATE AND WATER ACTIONS calls on all Governments to "Safeguard and strengthen the authoritative voice of NMHSs [National Meteorological and Hydrological Services] for the issuance of warnings and relevant information to support critical decisions related to natural hazards and disaster risks, in collaboration with national disaster management authorities".

25. Existing access to weather data arrangements do not provide visibility or market discipline on whether data, products, or services are being appropriately given away, priced, charged for, or enabled via markets. Views on access to weather data are evolving in response to climate change and it is likely that in future greater importance will be placed on freely available, real time weather data.

26. The Open Access to Data review undertaken in 2018, suggested that changes in the structure of MetService and NIWA would need to be considered to make more data freely available[9]. If the proposed review revisits the current settings of the entities, it should contemplate the future need to access weather data. We note that opening access to the data will impact the current funding arrangements and business models of MetService and NIWA. However, free data would likely limit monopolistic behaviours arising from closer collaboration between NIWA and MetService and ideally stimulate innovation in the sector.

The weather forecasting system is of increasing importance given the impacts from climate change

27. Weather forecasting is becoming increasingly important given the impacts of climate change. According to the World Economic Forum, natural disasters and extreme weather events are considered the second most severe risk over the next two years.[10]

28. According to MetService, due to climate change, forecasting the intensity of weather events is becoming more difficult due to unprecedented atmospheric forces and behaviours that current scientific models cannot predict. A particular example was the Auckland floods on 27 January 2023, where neither the MetService nor the NIWA models predicted the peak rainfall intensity of the event.

29. MetService has reported that the Auckland flooding was a hybrid event which included heavy rain and thunderstorms in the same system. The thunderstorm warning system is different from the broad-scale severe weather warning system. The lead times are much shorter, reflecting the small space and time scales associated with thunderstorms and their inherent weak predictability. Currently, forecasters can predict severe thunderstorms, but they cannot precisely predict when and where they will occur or their intensity.[11]

30. A connected weather forecasting system where intelligence between entities can be shared and effectively communicated is critical to support emergency management entities in their decision-making during severe weather events.

31. Considering the issues above, officials are seeking agreement from Ministers to commission a review to address the following problem:

    What are the optimal arrangements in the weather forecasting system that will best position New Zealand to meet future weather-related challenges and impacts in the context of climate change? What is the optimal structural configuration with respect to MetService and NIWA to support this objective?

32. Officials believe that an external review is the best mechanism for Ministers to get the required insights and recommendations on optimal arrangements in the system. Each

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9 MetService and NIWA operate the data collection network on a user-pays model, where commercial prices are set to ensure revenue covers operating costs. MetService and NIWA use commercial revenue from data and associated services to help them pay for maintenance and upgrades to the data collection network, and for their ongoing operations. If barriers to data access were lowered and this revenue fell, the government would need to make a greater financial contribution directly. Weather Permitting: Review of open access to weather data in New Zealand (mbie.govt.nz)

10 The Global Risk Report 2023.

11 We note that the Auckland Council is commissioning a review on the immediate response to severe weather events. The purpose is to assess the performance of the immediate official emergency response and identify any actions that need to be implemented immediately to ensure better preparation for the next event. The focus of this review differs from our proposed work programme as it is focused on the decision-making during weather events rather than the future needs for weather information and alignment within the weather forecasting system.

party has its own interest in the system, making an independent review suitable to avoid any bias and provide the expertise required. We note that previous measures like the MOU and expectations have not been effective.

Review of potential changes in the weather forecasting system and data access arrangements is timely

33. Following recent severe weather events there is likely to be a growing expectation for New Zealand's weather forecasting system to be connected to enable the best possible flow of timely information on weather events and impacts.

34. Both MetService and NIWA have made comments indicating that the current arrangements in the forecasting system should be reviewed. According to MetService, climate change will bring more extreme weather events, therefore considering ways of leveraging research investment, institutional arrangements, and data access arrangements to drive system improvements should be considered. To this point, achieving optimal system improvements has been limited by competition between NIWA and MetService for commercial revenue. While competition can bring significant benefits in terms of service delivery quality, efficiency, and cost, we expect the review to assess if these benefits outweigh the continued disbenefits to the wider weather forecasting system and address the adverse outcomes of continuing to have these activities separated.

35. [25], [34]

36. There is an opportunity to consider how the contract could best serve New Zealanders, MOT and key stakeholders' future needs, particularly in light of the recent flooding disasters in the upper and eastern regions of the North Island. We note that there have been significant changes since the inception of the contract in 2015. There is an opportunity for the next contract to better reflect the rapidly changing need for services to support national resilience to severe weather impacts and improve public safety. We expect the review to provide good insights that could be considered for enhancement of the services required under the future contract.

37. We note that due to the recent weather events, MOT is reconsidering submitting a 2023 Budget bid to increase the scope of the MetService contract to include purchasing additional support for NEMA and the Civil Defence Emergency Groups during national hazards caused by severe weather events. While this will strengthen the alignment with emergency management entities, the disconnection will continue with other parts of the system, including hydrology and research on weather and climate change, which are within NIWA's mandate.

38. Officials have seen an increase in media requests and Ministerial correspondence on the relationship between MetService and NIWA, overlap of services, and on access to data, which shows the ongoing interest of the public in these matters.

39. Considering the problem definition outlined above, we have set out below three potential options on the scope of the review for Ministers to consider:

    - **Option 1 (maintaining the status quo):** Weather forecasting research and operations continue to stay separated. Data is available to the extent it does not undermine commercial operations of the entities or is purchased directly from the agencies.

    - **Option 2 (undertake review focused on changes in entities' settings):** Consider changes in MetService and NIWA's current settings that best position New Zealand to meet future weather-related challenges and impacts in the context of climate change. This would include how best to develop a pathway for research-to-operation-to decision makers, and importantly, involve consideration of institutional arrangements (including ownership, governance, entity form and business combination options), competition law, and funding arrangements.

    - **Option 3 (undertake review focused on changes in entities' settings and appropriate arrangements for access to weather data):** This option would include the scope of Option 2 but also consider the optimal arrangements around access to weather data given the direction of the system.

40. Officials believe there is enough evidence of the problems and inefficiencies in the weather forecasting system to focus on Option 2 and Option 3. Option 2 will provide recommendations to address the problem defined above. However, the review brings an opportunity to contemplate the arrangements around access to weather data in the context of New Zealand's future needs. Further, if entity changes include closer collaboration between NIWA and MetService, opening that data could limit any monopolistic behaviour and create a more competitive market for data customisation.

41. Further opening access to data would affect the entities' current funding and business models. We expect the review to provide recommendations on more appropriate configurations between changes in the entities' settings and desired level of openness with respect to data. There would still need to be one single authoritative voice for the weather warnings and public safety messaging in the weather forecasting system.

42. We consider that the arrangements around access to data should also be explored and consequently recommend Ministers agree to Option 3. MBIE and the Treasury will fund the review within their existing funding available for strategic reviews.

Proposed review will build on previous assessments

43. Previous reviews found that without any changes to MetService and NIWA's settings, longer term risks would eventuate in the capability of New Zealand's weather forecasting, including:

    i) duplication of systems leading to sub-optimum efficiency;

    ii) loss of collaborative opportunities; and

    iii) an increase in economic and societal costs without cross-disciplinary application of weather and climate science.

44. We consider these issues are still relevant and align with the problem definition discussed above.

45. Previous attempts to increase collaboration between the entities (e.g. via MOU) have been unsuccessful. With the strengthening of competition law and competitive

tensions, the future collaboration of the entities under the current settings is unlikely. The proposed review will examine the structural changes needed to have fit-for-purpose entities and system settings. There is also increased pressure given the growing expectation of a more integrated weather forecasting system, allowing the best possible flow of timely information on weather events and impacts.

46. We consider the Open Access to Weather Data review (2018) can provide a good starting point for the review proposed in this report. We note that any changes in the settings of MetService and NIWA (including institutional arrangements) will need to be considered in the context of the different applicable Acts and associated regulations, including (but not limited to) the SOE Act 1986, the CRI Act 1992, the Crown Entities Act 2004, and the Commerce Act 1986.

47. Subject to Ministers' agreement, the review will leverage from previous assessments to avoid any duplication.

A review will advance the Te Ara Paerangi (TAP) – Future Pathways programme

48. MBIE is undertaking TAP, a multi-year programme focused on how to best position New Zealand's Research Science and Innovation (RSI) system for the future. New Zealand's research system was designed nearly 30 years ago, and some parts of the system are not working as well as they should be. Some of the findings during the TAP consultation process to this point revealed the current system suffers from weak connectivity between organisations, lack of role clarity between institutions, unproductive competition, and lack of integration between Universities, CRIs and other research organisations.

49. TAP aims to bring significant changes to the system. Phase 1 of the reform will focus on the workforce and start embedding Te Tiriti o Waitangi in the RSI system in 2023. Phase 2 of the reform will focus on establishing National Research Priorities. Work is planned to begin in 2023, with high-level National Research Priorities agreed in 2024. Phase 3 of the reform will implement any changes required to public research organisations, governance arrangements and funding mechanisms to achieve the vision of TAP, which are expected from 2026 onwards.

50. The proposed review of weather forecasting system settings in this report not only aligns with the principles of TAP, but such a review would in fact focus on the types of problems that the TAP programme is trying to address. In that context, a review of the settings within the weather forecasting system and the place of NIWA and MetService within that system will be effectively and practically advancing the TAP change programme. We note that the proposed review would not duplicate any work undertaken in the TAP programme but would be closely connected and coordinated with it.

Risks and considerations

51. The longstanding issues in the weather forecasting system will be exacerbated by climate change. Not taking action could limit innovation in weather forecasting, leading to lower detection and warnings of severe weather events. Maintaining the status quo will have consequences for public safety and the economy (i.e. Auckland Floods).

52. However, implementing any potential review recommendations also entails risks. Officials propose the review considers the institutional arrangements within the system, including the most appropriate institutional forms, organisational systems, forecasting

capability, competition elements, and funding mechanisms, and provide recommendations for more suitable and sustainable arrangements.

53. Recommendations from the review will likely affect the institutional arrangements and form(s) in respect of NIWA and MetService which could impact their operations and financial position going forward.

54. Officials note that the respective cultures of MetService and NIWA are different. SOEs have a commercial focus and CRIs have a research and science focus. Historically there has been tension between the companies at the executive level, given the competition and overlap of services.

55. If Ministers choose Option 2 for the scope of the review there is a risk that, without changes in the arrangements around data access, the barriers to entry into the market increase. Therefore, it would be preferable for broader issues such as access to data to also be considered (Option 3). Officials recommend that the review should also contemplate the effect and impacts of competition law in making its recommendations.

56. Options 2 or 3 could result in recommendations for legislative change which, if Ministers agreed, would need to be included in a legislative programme and prioritised alongside other government legislative programmes. The timeline of any changes to the weather forecasting system will be impacted by other legislative priorities.

57. MOT is also supportive of this initiative and its focus on public safety, however due to capacity constraints it is only a stakeholder in this review. Nevertheless, it will still be kept informed of the review and will provide input as it develops given its interests in the weather forecasting contract and its focus on the quality of the weather forecasting services it purchases and the need for future services.

58. There has been some media attention regarding the relationship between MetService and NIWA. Any proposed changes to the current settings may bring additional media attention and communication risks.

Next Steps

59. Ministers may wish to discuss this proposal given the cross-portfolio interest in the weather forecasting system.

60. If you agree to commission a review, officials will engage with key stakeholders on a draft Terms of Reference (ToR), including scope and a timeline and provide further advice to Ministers.

61. Once Ministers have approved the ToR, officials will commence a procurement process to source an appropriately qualified external provider to undertake the review and provide a report with their recommendations.

62. Subject to Ministers' decisions and successful procurement, the final report of the review is expected to be delivered before the end of 2023.

63. Subject to the agreement of the Minister of Transport and MOT, the review recommendations could be considered for the negotiation of the next contract for weather forecasting in 2027.