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The Registrar
Commerce Commission
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Submission on the Commerce Commission's
Statement of Preliminary Issues – 700 MHz Spectrum Applications

Introduction

1. Vector Limited ("Vector") welcomes the opportunity to make this submission on the Commerce Commission's ("the Commission") *Statement of Preliminary Issues – 700 MHz Spectrum Applications*, dated 22 October 2013.

2. No part of this submission is confidential and Vector is happy for it to be made publicly available.

3. Vector supports the submission of the Electricity Networks Association on this matter.

4. Vector's contact person for this submission is:

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Overview

5. Vodafone New Zealand Limited ("Vodafone") and Telecom New Zealand Limited ("Telecom") have sought clearance from the Commission to acquire a fourth lot (additional 2 x 5 MHz) or total management rights of up to 2 x 20 MHz in the 700 MHz band being auctioned by the Ministry of Business, Innovation and Employment ("MBIE"), should the auction of these rights proceed to a supplementary allocation phase.

6. During the course of this consultation, both Vodafone and Telecom have successfully bid for three lots each, and 2Degrees has successfully bid for two lots, out of the nine lots for sale in the 700 MHz band. The Government has stated it "could retain the unsold lot and allocate it at a later date".[1]

7. Vector believes the Commission should **not** grant clearance to Vodafone and Telecom in this case. Otherwise, it would allow the further concentration of spectrum holdings in their hands, substantially lessening competition in the market for spectrum management rights. It would effectively lock out other potential users, both in telecommunications and other sectors, from using this band for many years. This would not be consistent with the purpose of the Commerce Act 1986 and Telecommunications Act 2001 of promoting market competition for the long-term benefit of New Zealand consumers.

The changing nature of spectrum demand and access seekers

8. In considering whether to allow Telecom and Vodafone to acquire a fourth lot in the 700 MHz spectrum auction, the Commission should seriously take into account the increasing demand for spectrum by a wider range of users and access seekers, both in telecommunications and other sectors. This has significant implications on how the Commission should: 1) define the "relevant market", 2) assess market competition, and 3) achieve desired consumer outcomes.

9. The auction of the 700 MHz (or 'digital dividend') spectrum symbolises the transition from the analogue to the digital age, and the dramatic benefits wireless digital technologies can bring to New Zealand consumers. Advanced digital technologies that use the radio spectrum (not just cellular/mobile technologies) provide greater opportunities for productivity improvements across the economy. This is enabled not only by technological convergence between ICT and broadcasting technologies but also by ICT's convergence with applications used in other sectors such as energy, agriculture, finance, retail, health and emergency services. In Australia, access to spectrum is also being sought by the transport and mining sectors.[2]

10. The increasing applicability and use of wireless communications technologies to deliver efficiency gains in various sectors implies that the demand for spectrum could heighten in the next few years, not only from incumbent licensees and right holders (e.g. mobile network operators) but also from new and potential users. The responses to MBIE's consultation on its *Draft Five Year Spectrum Outlook 2012-2016*[3] reflect this trend.

[1] http://www.beehive.govt.nz/release/three-bidders-successful-700-mhz-4g-spectrum-auction
[2] http://www.acma.gov.au/webwr/_assets/main/lib550036/ifc41_12-paper_2-spectrum_licences-1800mhz_band.pdf, pages 10-11
[3] http://www.rsm.govt.nz/cms/policy-and-planning/consultation/radio-spectrum-five-year-outlook-2012-2016

Submitters interested in accessing spectrum include 'non-traditional' spectrum users such as utilities operating critical infrastructure services that intend to deploy smart infrastructure networks.

11. The deployment of smart networks (which utilise spectrum to transmit information to and from network users) and the introduction of more 'disruptive technologies' will significantly contribute to the accelerating demand for spectrum in the coming years.

12. The Australian Communications and Media Authority's *Five-year spectrum outlook, 2013-2017*[4] observes that:

> …Smart infrastructure is recognised as a major development that will modernise the transport, resource, mining, electricity, gas and water sectors over the coming decades.
>
> Due to the anticipated ubiquitous nature of smart devices in the future, wireless communication will likely be a major component of the operation of smart infrastructure systems. Therefore, **radiofrequency spectrum will be required to facilitate area-wide…smart infrastructure networks**. [emphasis added]

13. The pervasive nature and impact of wireless digital technologies implies that the allocation of spectrum should be considered within a wider context than how a particular band itself is sliced, priced and allocated. It is important to appreciate that spectrum bands have multiple uses (commercial or otherwise), and services provided using those bands could traverse multiple markets.

The relevant market

14. Vector agrees with the Commission that "[a] relevant market is ultimately determined, in the words of the Act, as a matter of fact and commercial common sense".[5]

15. The Commission's previous decisions considered the impact of spectrum acquisitions in the national markets for: 1) retail mobile services (for residential and business customers), and 2) wireless spectrum management rights suitable for mobile services.[6] Vector considers this definition to be inappropriately narrow in the context of the changing nature of spectrum

[4] http://www.acma.gov.au/~/media/Spectrum%20Outlook%20and%20Review/FYSO%202013%202017/pdf/fiveyear_spectrum_outlook_20132017_FINAL%20pdf.pdf, section 5.10.3

[5] Consultation document (Preliminary Issues Paper), paragraph 12

[6] Ibid., paragraph 17

demand in New Zealand, as described above. It is premised on the view that the 700 MHz band is only suitable for (4G) cellular/mobile services.

16. Vector considers that the 700 MHz band forms part of a broader market for wireless spectrum management rights and not necessarily a "differentiated" or "discrete" market. Spectrum management right holders manage a 'portfolio of spectrum', not individual blocks of spectrum in isolation from their overall spectrum holdings, and make decisions on what spectrum they can acquire or offload at any point in time or over time.

17. The assumption that the 700 MHz band should be allocated only for cellular/mobile services is flawed, given that it can be used for other high-value services. A block of spectrum should be treated as a technology-neutral enabler of multiple new and innovative technologies that would benefit consumers. For example, the emergence of machine-to-machine (M2M) communications, which form part of the development of smart networks (and could potentially operate in the 700 MHz band), may require network characteristics and service levels that are radically different to those offered by today's mobile network operators and may be fundamentally inconsistent with mass-market targeted networks.

18. Various spectrum frequencies are substitutable resources, i.e. the 700 MHz band can host multiple technologies just as a particular service can be deployed using various frequencies, subject to technical considerations. As stated by Vodafone in its clearance application, "4G services can be delivered via various spectrum holdings and do not necessarily require 700MHz spectrum"[7] and that "from a demand side perspective, 3G and 4G services are likely to be viewed as credible substitutes".[8]

19. Australia's Energy Networks Association has identified various spectrum bands most likely to be suitable for the functional and technological requirements of smart networks (in the Australian context). These include frequencies in the **700 MHz** (the most suitable spectrum), 900 MHz, 1.7 to 1.8 GHz, 2.3 GHz, and 2.5 to 2.6 GHz bands.[9]

20. A wider definition of the relevant market is required, given the significant impact of this auction on incentives for various parties (not only in the telecommunications sector) to acquire, access or offload spectrum across different bands in the future. This would have implications for competition and consumer outcomes in the wider economy.

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[7] Vodafone 700 MHz Spectrum clearance application, http://www.comcom.govt.nz/business-competition/mergers-and-acquisitions/clearances/clearances-register/detail/800, paragraph 16

[8] Ibid., paragraph 62

[9] http://www.acma.gov.au/webwr/_assets/main/lib312084/ifc13-2011_energy_networks_assoc-response-2.pdf, page 26

21. In light of the above, Vector suggests that the Commission widen its definition of the relevant market from a focus on cellular/mobile services to a technology-neutral "**national market for spectrum management rights**".

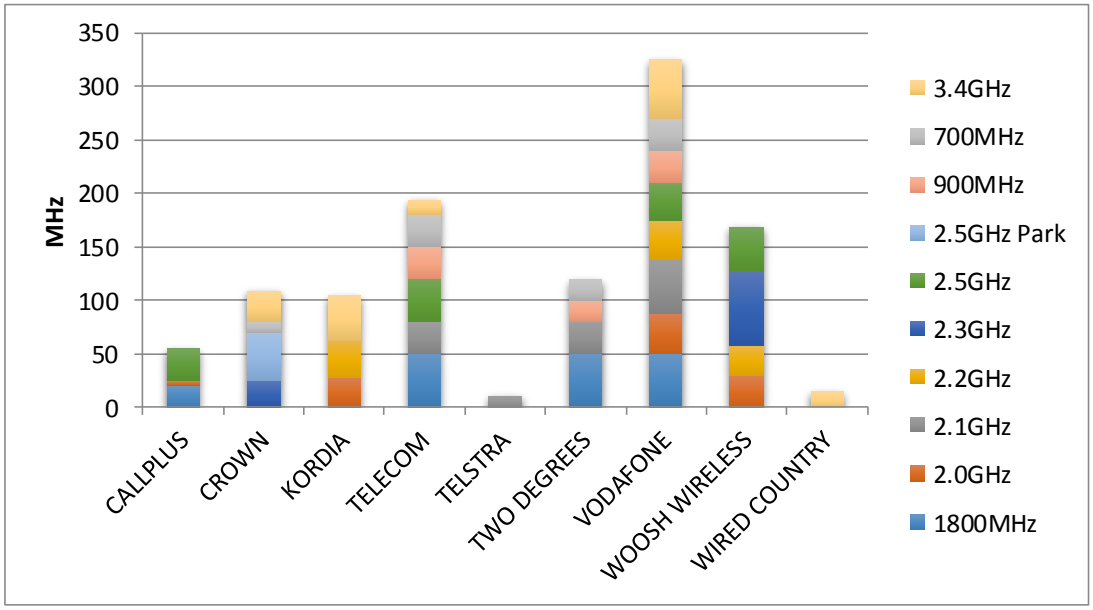
Implications for spectrum market competition

22. There are potentially other uses for the digital dividend spectrum. Allocation arrangements should be flexible enough to accommodate access seekers and new entrants in future years.

23. Figure 1 shows that ownership of spectrum management rights is currently concentrated in the hands of the parties seeking clearance. This is inclusive of the rights they have successfully acquired through the recent 700 MHz auction.

24. It is clear that should the Commission allow Vodafone or Telecom to acquire a fourth block in the 700 MHz band, this would further intensify the concentration of spectrum in their hands, substantially lessening competition in the national market for spectrum management rights.

Figure 1. UHF Spectrum Right Holdings in New Zealand (by Operator)



Data Sources: MBIE Radio Spectrum Management website and the announcement by Hon Amy Adams on the 700 MHz spectrum auction, http://www.beehive.govt.nz/release/three-bidders-successful-700-mhz-4g-spectrum-auction, 30 October 2013

25. Both Vodafone and Telecom already have ample cellular spectrum, to begin with. MBIE's (then MED) discussion paper on the renewal of cellular spectrum rights, released in 2006 and informed by a joint report by

PricewaterhouseCoopers and the New Zealand Institute of Economic Research, observed that cellular operators in New Zealand have ample spectrum relative to their European counterparts.[10] The report states that:

> In conformance with International Telecommunications Union (ITU) designations, the Government has made available to the market at least as much spectrum as that available in most European countries. New Zealand's population and population densities, however, are significantly lower than most of these countries.
>
> It appears that despite the physical limits on the available quantum of spectrum, **cellular spectrum in New Zealand is, in fact, in surplus relative to what is technically needed to operate networks in the country**. It can, therefore, be assumed that **cellular spectrum in New Zealand is 'not scarce'**. This implies that the value of a marginal piece of spectrum to an operator is likely to be low, all things remaining equal. [emphasis added]

26. It is not just cellular operators who have the ability to provide higher-value services in the 700 MHz (and other bands) in future years. Should the Commission fail to take this into account, it could effectively 'lock-in' the 700 MHz band for highly specific technologies/uses for up to almost 18 years.

27. As a fast adopter of technology, New Zealand cannot afford to close its options to accommodate newer and other forms of technologies due to market barriers such as the unavailability or prohibitive price of spectrum.

28. Vector notes that some potential users may not require big chunks of the 700 MHz or other bands. A 5 MHz pair of (shared or dedicated) spectrum may be sufficient to meet their operational and other needs.

Limits on overall spectrum holdings

29. The Commission has the ability to prevent the further concentration of spectrum holdings in New Zealand, and ensure the availability and price of spectrum do not become barriers to the introduction of newer of more innovative technologies in the future.

30. In making its decision, the Commission should assess competition in the context of spectrum right holders' overall holdings, instead of focusing on a particular band, and consider:

[10] http://www.rsm.govt.nz/cms/pdf-library/policy-and-planning/radio-spectrum/rights-at-expiry/renewal-of-management-rights-for-cellular-services-discussion-paper-161-kb-pdf, paragraphs 20-21

a. setting a ubiquitous management rights cap in the 700 MHz band of, say, 40% for any right holder; and

b. how additional spectrum for each applicant would impact on its overall holdings of management rights below 1 GHz (where spectrum is valued more for its lower cost coverage) and above 1 GHz band (where it is regarded as more suited to urban mobile broadband).

31. A 'holdings-wide' approach or portfolio approach of assessing market competition would:

a. promote allocative efficiency – it would provide incentives and greater flexibility for right holders to use spectrum more efficiently and manage a portfolio of spectrum property rights to meet the unique needs of their business and consumers instead of looking at their holdings in each band in isolation. Right holders can dispose of spectrum that is less valuable to them and increase their holdings of spectrum that are of highest value to them, lowering their operational and 'inventory' costs and costs to consumers;

b. ensure no party can acquire, if not hoard, spectrum that is not necessary for their efficient operation, retaining competitive pressures in the spectrum market;

c. potentially release some spectrum in the 700 MHz and other bands for non-cellular and non-traditional users. This would benefit not only telecommunications consumers but consumers in other sectors;

d. ensure technology neutrality, to the extent possible, by preventing the ownership of spectrum from being tied up with particular technologies for long periods of time. This de-linking process would enable the evolution of an allocation regime that ensures interested parties are able to access spectrum at competitive prices in the future;

e. encourage secondary trading – right holders offloading spectrum that is relatively less valuable to them would facilitate a more liquid secondary spectrum market in New Zealand. With the increasing interest in the use of spectrum by both telecommunications service providers and non-traditional users, it is reasonable to expect the secondary market for spectrum to become an active rather than a thinning market. Increased tradability of ownership rights would make the value of spectrum more transparent and exert downward pressure on spectrum prices, which has positive flow-on impact on consumers;

f. promote dynamic efficiency – the greater flexibility provided by a portfolio approach of spectrum allocation would incentivise right holders to move away from focusing on lower-value services (e.g. voice services) to higher-value services (e.g. more service-oriented approaches) such as managed data services that would meet the requirements of the digital economy, including future quality-of-service requirements and enhanced consumer expectations; and

g. deliver other positive outcomes for consumers, e.g. the availability of dedicated spectrum to critical infrastructure providers allow disrupted supply of essential services to be restored quickly, which has implications for public safety, security of supply, and infrastructure resilience.

Concluding comments

32. In light of the above, Vector **recommends** that the Commission:

a. widen its definition of the relevant market from a focus on cellular/mobile to a technology-neutral "national market for spectrum management rights", given the changing nature of spectrum demand and access seekers;

b. conduct its own comparative inventory of spectrum management right holdings in New Zealand, to confirm the already high concentration in this market which would be exacerbated should it clear Vodafone and Telecom's applications; and

c. not grant clearance for Vodafone and Telecom to acquire a fourth lot (a total of 2 x 20 MHz) in the 700 MHz band.

33. Imposing limits on the further concentration of spectrum holdings will help ensure that parties who wish to deploy similar or other services would not be prevented from doing so at a future date, or when it makes sense for them to do so operationally, due to the unavailability or prohibitive price of spectrum.

Further information

34. Vector suggests that the Commission refer to some previous submissions made to MBIE that are relevant to the allocation of the 700 MHz band:

a. Vector Limited, *Submission on Digital Dividend Opportunities*, 6 October 2011, http://www.rsm.govt.nz/cms/pdf-library/policy-and-planning/current-projects/digital-dividend-planning-for-new-uses-of-the-

700mhz-band/submissions-1/Digital%20Dividend%20Submission%20-%20Vector.PDF;

b. Vector Limited, *Submission on the Draft Radio Spectrum Five Year Outlook, 2012 – 2016*, 19 October 2012, http://www.rsm.govt.nz/cms/pdf-library/policy-and-planning/submissions/Submission%20from%20Vector.pdf;

c. Vector Limited, *Submission on the 2.1 GHz Acquisition Limits Review*, 11 April 2013, http://www.vector.co.nz/sites/vector.co.nz/files/Vector%20Submission%202.1GHz%20Acquisition%20Limits.pdf; and

d. Electricity Networks Association, *Submission on the Draft Radio Spectrum 5-Year Outlook*, 19 October 2012, http://www.rsm.govt.nz/cms/pdf-library/policy-and-planning/submissions/Submission%20from%20Electricity%20Networks%20Association.pdf.

35. Vector would be happy to discuss with the Commission any issues in relation to this submission.

Yours sincerely

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