



Renewal of Management Rights in the 1800 MHz and 2100 MHz bands: Discussion Document

**Two Degrees Mobile Limited
Submission to the Ministry of
Business, Innovation &
Employment, Radio Spectrum
Policy & Planning Team**

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Confidential and market sensitive information

Confidential and market sensitive information that Two Degrees Mobile Limited (**2degrees**) has included in this submission, based on the view that it can be withheld under the Official Information Act 1982, is marked in bold square brackets **[C-I-C]**. We ask that we be consulted on any request received for the release of such information.

1 Introduction

The Government has set ambitious goals to:

- Make ICT the second largest contributor to GDP by 2025;
- Ensure New Zealand capitalises on its digital infrastructure to increase productivity and the economic benefits of the internet, and ensure a successful high-tech economy; and
- Address digital divide issues in both rural and urban areas, including creating a blueprint for digital inclusion.

This reflects the Minister's view that:

We already have good connectivity, and it's getting better all the time. We have three strong mobile networks on 4G technology, and a pathway emerging towards 5G.¹

But to achieve this requires ensuring that policy settings do not undermine the third mobile network entrant, the late entrant challenger, which is not at the same stage as other national operators.

The upcoming 1800MHz and 2100MHz spectrum renewal decisions are critical to 2degrees' ability to continue to invest and deliver competitive and disruptive services. These decisions impact the effectiveness of 2degrees' consumer and business data services, the growth of the wholesale business and our plans to compete in fixed wireless access and IoT markets.

While successive Government policies have led to a situation where New Zealanders throughout the country benefit from infrastructure competition via three national mobile networks – including in rural areas where there is RCG infrastructure sharing and national retail products - the approach to how it allocates the 1800MHz and 2100MHz spectrum, as well as 3.5GHz 5G spectrum shortly, will determine how effective future competition evolves.

Spectrum plays a key role in the delivery of competitive services. As a result, having access to less spectrum than other national providers, potentially losing important LTE spectrum and/or not acquiring sufficient 5G spectrum will undermine the Government's aspirations and the competition from 2degrees the Minister has supported to date.

2degrees only has 18% of spectrum

2degrees has substantially less spectrum than New Zealand's other national mobile operators, with just 18% of allocated mobile spectrum.² 67% of 2degrees' spectrum is in the 1800MHz and 2100MHz bands that are subject to this renewal consideration. [

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2degrees does not support any of the draft renewal options in the consultation document. The options do not appropriately recognise the importance of this spectrum to the continued delivery of competition and services to 2degrees' consumers. There would be both a disproportionate impact on 2degrees and consumer harm of proposed partial renewal options on 2degrees' [] customer base. This would weaken 2degrees - just as it completes its national rollout and is expanding beyond traditional retail consumer markets.

¹ Hon Clare Curran, Address to Nethui 2017, Aotea centre, Auckland, 9 November 2017.

² We have excluded both 3.5GHz and mmWave holdings that are held by other operators but will not be, or are not expected to be, renewed. 2degrees' percentage would be lower including this. 2degrees does not hold either 3.5GHz or mmWave spectrum.

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2degrees does not support options that further exacerbate the current spectrum disadvantage, perpetuate 2degrees' cost disadvantage and limit 2degrees' options for rolling out new technologies to our retail and wholesale customers, both existing and future. We consider this undermines, not promotes, competition by disadvantaging the very operator that has invested significantly to bring competition to the market and is the best placed to constrain larger mobile network operators, with its already deployed national mobile network investment and expertise.

With less spectrum already, 2degrees requires renewal of all its 1800/2100MHz spectrum

2degrees supports a fair allocation between national operators and has the view that over time no operator should have more than 35% total mobile spectrum holdings. In our previous submission to MBIE 2degrees supported full renewal of the 1800MHz to existing MNOs (2x25MHz) and rebalancing of the 2100MHz spectrum band (2x20MHz each). This recognised that one operator currently has significantly more 2100MHz spectrum as a result of the TelstraClear merger.

The importance of the 1800MHz spectrum is far greater for 2degrees than other players that have a higher amount of other spectrum, including, 2300MHz and 2600MHz spectrum bands.³ Any option where 2degrees loses any 1800MHz is very concerning.

We have provided updates to MBIE regarding our 1800MHz use and our increasing concerns over the significant delays of the renewal decisions and their impact on 2degrees. This includes making clear that:

- 2degrees has already deployed both 1800MHz carriers (2x20MHz and 2x5MHz) for LTE to address network capacity and enable 2degrees to continue to deploy and provide innovative and competitive services, such as Data Clock.
 - 2degrees is experiencing exponential growth in network traffic [].

- 2degrees' 1800MHz is critical to its 4G and 4.5G+ deployment. **This is because, unlike other operators, 2degrees does not have 2300MHz or 2600MHz holdings.** Any 4.5G+ deployment involves aggregation of spectrum bands.
- The traffic on our F2 1800 carrier is increasing and we expect further substantial increases in demand prior to the 2021 renewal date [].

- Lack of spectrum is already limiting 2degrees' options and market competition [].

³ As well as 850/900MHz and 700MHz. This includes 2x9.8MHz of 900MHz spectrum (not a more useful 2x10MHz of 900MHz spectrum) when other national operators have 2x15MHz and 2x15.2MHz respectively. 2degrees has no 2300MHz or 2600MHz spectrum at all.

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Substantial delays now mean Government is well short of a reasonable notice period

Previous long-standing policy, including the policy put in place by the previous Labour Government (following wide consultation, and the position still published when renewals were expected) has been to ensure *'decisions on renewal are made at least five years before expiry'*.

This rightly recognised the need for certainty for investment, the need to minimise stranded investment and minimise supply discontinuity. We understand this remains the notice MBIE is required to provide other non-management right holders.

Renewals decisions now will fall well short of five years, and yet non-renewal of all or part of 1800MHz or 2100MHz spectrum will impact the level of services received by hundreds of thousands of 2degrees customers - more consumers than in cases where Government has (or will) provide five years notice.

Short notice of prices and a potential loss of key 2degrees spectrum creates significant investment uncertainty at the same time mobile operators are expected to make hundreds of millions of further investment, including in:

- 4G, 4.5G+ and 5G technologies and services;
- Wholesale services;
- Rural connectivity and addressing digital divide issues;
- New spectrum that will shortly become available.⁴

2degrees is also just completing its national network to serve rural New Zealand, supporting the Minister's digital divide objectives. [

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While we understand a new Government is now in place, and wishes to reconsider some issues, operators investing in New Zealand infrastructure require certainty on their spectrum holdings now, including for the policy reasons previously identified by Labour.

If full renewal of 2degrees' spectrum cannot be confirmed now, a minimum five-year notice period should be restored

We support full renewal of all 2degrees' 1800MHz and 2100MHz spectrum, especially given its more limited spectrum holdings. However, if full renewal is not being decided now, a minimum five-year notice period should be restored. A five-year notice period (initially expected) would have meant renewal decisions were made by 1 April 2016.⁶

There are now less than three years before the expiry of key 2degrees spectrum bands - without renewal terms and offers having been received. Yet a further consultation document has been issued which still sets out wide-ranging options including no renewal and partial renewal of management rights. There has been no quantification of the incremental benefits and costs associated with such options, including the costs of removing spectrum from 2degrees versus allocating it to operators with no national network.

⁴ As previously submitted, we also expect the Minister to be briefed on important wider contextual issues including flat revenues, OTT players and overseas consolidation.

⁵ We are now at nearly 97% own network coverage with well over 90% LTE coverage, and growing.

⁶ MBIE issued a consultation document in July 2016, with responses in September 2016. Substantial data requests, to tight timeframes, were issued to MNOs in January 2017. This further consultation document was not issued until April 2018.

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Not renewing 2degrees' spectrum requires independent advice on incremental benefits and costs of this action

Consistent with MBIE's previous approach, for example with 850/900MHz renewal decisions, 2degrees does not support options that remove or reduce 2degrees' holdings without independent advice. This would quantify the incremental benefits and incremental costs associated with potentially removing spectrum from 2degrees versus allocating it to operators that have yet to invest in a national network. MBIE must critically analyse such claims and both the pros and cons of removing spectrum from currently competitive mobile operators (including one with substantially less spectrum than others) and advise the Minister of the significant issues this raises.

The closed process that occurred for the 2600MHz spectrum is totally inappropriate. It resulted in misleading and untested claims, and ultimately, severe underutilization of the 2600MHz spectrum, which other parties valued for LTE deployment. As of May 2018 the total number of licences for 2x35MHz of 2600MHz spectrum (both 2x15MHz of spectrum currently held by Blue Reach Wireless Limited and 2x20MHz of spectrum held by Cayman Spectrum (NZ) Co.) is still less than 50 (including multiple All New Zealand licences). The structure of some of these licences also raise questions as to the level of service actually provided to consumers. This is even after:

- A two-year extension of the time to meet implementation obligations;
- MBIE conclusions that implementation obligations have now been met on both these bands; and
- More than a decade after the spectrum was allocated.

Any consideration of incremental benefits and incremental costs should include:

- The incremental benefits 1800/2100MHz can deliver from 2021 *that cannot be delivered by other bands*, including 2600MHz, already available to some parties. The benefits of further competition created by parties to date is also relevant to this assessment.
- Quantification of the benefits from reducing the spectrum disparity between 2degrees and its larger competitors (quantifying the competition benefits to the New Zealand economy).
- Quantification of the economic damage of taking away 1800MHz and/or 2100MHz from 2degrees, which already has a significant spectrum disadvantage to Spark and Vodafone. This includes the negatives of 2degrees not being able to maintain the current level of competition.

Without such analysis and consideration any proposal for non-renewal to 2degrees could be based on ill-informed opinions and private commercial interests.

Recommendations

1. 2degrees supports full renewal of 2degrees' 2x25MHz of 1800MHz spectrum and 15MHz of 2100MHz spectrum.

This reflects that 2degrees:

- Already has substantially less spectrum holdings than other national wireless operators and is using all of this spectrum for 4G and 4.5G+ deployments; and
- The damage to competition that would result if the Crown does not offer full renewal to 2degrees.

This is our primary recommendation.

2. If 2degrees' 1800MHz holdings are being considered for reduction, the Government must provide a short-term rollover of 2degrees' existing 2x25MHz of 1800MHz rights to restore a minimum 5-year notice period.

This reflects:

- The substantial delay in this renewal decision;
- The substantial uncertainty if full renewal offers and reasonable terms are not made;
- The lack of analysis on the incremental benefits and costs of reducing spectrum holdings; and
- The competitive harm of such a decision.

In particular:

(2A) 2degrees would support a 5-year extension of its existing 2x25MHz of 1800MHz holding before a longer term renewal decision.

Recognising MBIE may be reluctant to postpone changes in all allocation decisions for five years (MBIE's 5-year option):

(2B) This extension could apply to 2degrees on the basis it has less spectrum; or

(2C) MBIE could provide for a 3-year extension (to March 2024) to existing rights holders to restore at least 5 years notice for any changes to 1800MHz holdings.

We think a minimum three year-extension to restore the five-year notice period is very reasonable given the very real delays by MBIE and the Crown in making this decision and the substantial number of consumers being delivered services.

This would also allow MBIE to analyse the incremental benefits and incremental costs of reducing spectrum holdings of current rights holders if considered necessary.

3. If the Government does not wish to postpone the renewal of both 1800MHz and 2100MHz rights to restore five-year notice periods, it could apply separate treatment of the 1800MHz and 2100MHz bands.

In particular, the Government could:

- For the 1800MHz: Restore a five-year notice period to 1800MHz rights by extending rights by a minimum of three years to existing management rights holders;
- For the 2100MHz: Adopt final renewal decisions on the 2100MHz spectrum from the current expiry date (31 March 2021).

This addresses 2degrees' prime potential concern of losing important in-use LTE 1800MHz spectrum with little notice, and the competitive harm to New Zealanders that would result.

Notably, consistent with *both* MBIE's partial renewal and full renewal options of the consultation paper, 2degrees expects at least full renewal of its existing 2100MHz holdings (2x15 MHz) whether the renewal offer is in 2018 or at a later date (provided the spectrum remains in use).

4. Rebalance the 2100MHz spectrum between existing national mobile operators, and at a minimum allocate 2x20MHz of 2100MHz for 2degrees

Given 2degrees' lack of 2300MHz and 2600MHz spectrum, 2100MHz is likely to be more important to its ability to serve data hungry customers. A 2x20MHz carrier of 2100MHz would enable optimal LTE deployment and carrier aggregation.

If a partial renewal allocation is adopted, we encourage MBIE and the Minister to make available to 2degrees an additional 2x5MHz of this spectrum to support strong mobile competition.

Consistent with our previous submission, we consider 2x20MHz allocations between national operators are likely to be the highest value use for 2100MHz, with other bands available for those that have not already deployed. Supporting this approach we note that [

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Consequently, we accept that a 2x20MHz allocation to each national operator is likely to be appropriate. We do not support any operator, particularly given other holdings, having more than 35% of this band in the long term.

More generally:

5. Renewal periods (as opposed to short-term extensions to restore notice periods) should be in 20-year terms (with five-year notice periods of renewal decisions before expiry)

This is consistent with our view a 20-year management right allocation is appropriate. 10-year or 15-year terms do not support certainty to maximise investment in New Zealand infrastructure.

Terms should allow for any relevant implementation period and for firms to earn a return on investment.

6. We continue to support reasonable price and payment terms. This includes payment over time for 20-year renewals, similar to that provided with the 700MHz allocation.

This is consistent with the Minister's indications, and is particularly important given that mobile operators need to make significant investments in 4.5G, 4.9G, 5G networks and spectrum purchases over the next few years.

Such large-scale investments have to be made at a time when revenues and profitability are being squeezed. Even global telecommunications operators like Vodafone are feeling the effects of high spectrum prices and OTT players (such as Skype, Google, Facebook, Amazon, Dropbox, Apple, Samsung, Netflix and PayPal).

These challenges should be recognised and supported by a Government that values improved competitive services being rolled out to New Zealanders and addressing digital divide issues.

2 Response to specific MBIE Questions

2.1 Renewal Options

Q1. Which renewal option is most suitable for the 1800 MHz and 2100 MHz bands? Is the most suitable option different for each of the two bands? Why?

MBIE's option of partial renewal would harm competition

As set out in our previous submission, we do not support any of the options MBIE has set out in its consultation paper. None of these options recognise:

- The important role these bands play in delivering 3G, 4G and 4.5G+ mobile services to New Zealanders right now and in the future;
- The significant investment and planning in these bands; and
- The need to rebalance the 2100MHz between operators, reflecting that one operator has significantly more 2100MHz spectrum than others, due to the Vodafone-TelstraClear merger.

Instead, we proposed an additional **Option [4]**:

- Renewal to existing national mobile operators that have deployed on this spectrum; but:
- Rebalancing of the 2100MHz, reflecting that one operator has significantly more 2100MHz spectrum, i.e. 2x25MHz of the 1800MHz band and 2x20MHz of the 2100MHz are offered for renewal to the existing three rights holders.

Other regulators have used renewal to reduce the existing imbalances in spectrum allocation between national operators and 2degrees supports MBIE taking a similar approach with the 2100MHz.

We consider this allocation of this spectrum is appropriate and best likely to achieve its highest value use. This is consistent with our view that over time no operator should have more than 35% of total mobile spectrum holdings.

Most importantly, 2degrees' 1800MHz spectrum should be fully renewed

As detailed above, 2degrees' 1800MHz rights are critical to its 4G and 4.5G+ deployment. It has already deployed both carriers of 1800MHz for LTE (both the 20MHz and 5MHz carriers). With far more limited spectrum holdings, including no 2300MHz or 2600MHz spectrum, the second carrier of 1800MHz is likely to be even more important to 2degrees than for other operators.

As such, 2degrees supports a full renewal of 2degrees' 1800MHz rights regardless of decisions on the 2100MHz band.

At the very minimum five-year notice rights for any reduction in 1800MHz spectrum rights must be restored

In lieu of this, and considering the significant delays in renewal decision, which now (at best) will not even be three years from expiry (as opposed to the at-least-five-years previously expected) we support a direct extension of rights to restore the notice period, especially for the 1800MHz band, the second carrier of which is critical to 2degrees' ability to compete.

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We do not support non-renewal or only partial renewals without this being validated by sound analysis, including of incremental benefits and costs of removing spectrum from 2degrees.

We expect any incremental benefits from making available 1800/2100MHz spectrum in 2021 will be small, given there are now alternatives to these bands for other parties in the current market. We also expect, any acquisition of 2degrees' spectrum by a potential new entrant is not likely to provide a higher value than negatives from loss of spectrum and competition from the third mobile entrant, 2degrees.

Q2. Is your organisation interested in acquiring 1800 MHz and/or 2100 MHz spectrum? If so, what radiocommunication service would you use it for and how much spectrum would your organisation require?

Yes. 2degrees already uses all carriers in both the 1800MHz and 2100MHz bands to deliver LTE (and some 3G) services. With substantially less spectrum, including no 2300MHz or 2600MHz, 2degrees' 1800MHz is critical to its LTE (including 4.5G+) deployment. This is to provide both mobile and fixed wireless services [

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Q3. Are the 1800 MHz and/or 2100 MHz bands the most appropriate band(s) for your organisation's use? Why? What alternative bands are suitable for the intended service you expect to provide?

Yes. The 1800MHz and 2100MHz spectrum are a key component of the portfolio of spectrum bands 2degrees' wireless services require to provide for coverage, capacity and necessary technology generations.

We have already invested heavily on these bands, which are on a critical upgrade path for 4.5G. As an existing operator with 3G and 4G customers, we are also required to continue offering these services to consumers. We anticipate 4G services will be required for some time to come. 3G services also remain important, as recognised by the Minister in relation to 3G rollout by the RCG in Haast. It is not a reasonable expectation of the Crown to assume 2degrees does not need spectrum to manage these technology changes and remain competitive.

Unlike other operators, because we do not have LTE 2300MHz or 2600MHz to use for carrier aggregation, the 1800MHz and 2100MHz is even more important to 2degrees.

If other 'new entrants' emerge they do not have the same existing investments and upgrade path to 4.5G on this spectrum and are able to use other bands, with similar propagation characteristics such as 2600MHz.

Q4. Is a competitive allocation process appropriate to assign some (or all) the 1800 MHz and / or 2100 MHz bands? If not, what other allocation process (excepting direct offer to incumbents) would be more appropriate? Why?

Competitively allocating this spectrum less than three years before expiry when MBIE knows existing operators are using and continuing to rollout technology on this spectrum would create a reputation of spectrum uncertainty in New Zealand and is inappropriate where significant investments have, and are, being made.

Renewal is a long-standing policy both in New Zealand and overseas and there is a strong expectation this will be the case.

We also do not support outcomes that would exacerbate the existing spectrum imbalance between 2degrees and other national operators. At a minimum we consider an equal allocation of 1800MHz and 2100MHz between the three national operators is appropriate.

In addition, we note 2degrees is more financially challenged when competing against larger, better-funded players, while at the same time investing in rollout to service consumers, consistent with Government expectations. This was evidenced in the 700MHz auction.

A competitive auction of spectrum 2degrees is currently using is also inconsistent with a Government trying to encourage competition and not seeing spectrum as a revenue stream. The risks associated with this should be unacceptable to such a Government.

As per our 5G submission we do not support other allocation mechanisms such as first come first served, lottery and an administrative allocation. These are all likely to encourage speculators and could result in under-utilisation, as has occurred in the past.

Q5. Would your organisation participate in a competitive allocation process (e.g. a spectrum auction) for management rights in the 1800 MHz and 2100 MHz bands? If not, why not

Our response to Q4 sets out why a competitive allocation process to reallocate the 1800MHz and 2100MHz bands is not in the best interests of New Zealanders.

2.2 Term of new management rights

Q6. What should the term of the new management rights be? Should they be the same for both bands? Why?

2degrees supports 20-year terms for renewals.

As discussed above, given very significant delays in renewal decisions, and the fact that MBIE still appears to be considering reducing 2degrees' spectrum holdings – despite being told the importance of this to competition and consumers - we support a shorter-term extension of existing rights (i.e. if MBIE would like to consider its partial renewal option, which we consider requires further analysis).

This would at a minimum restore a five-year notice period of any proposed non-renewal and is far more reasonable given the substantial delays and number of consumers being served by these bands.

Q7. Do you have a different preference for the management right term for each of renewal options outlined in Section 4? If so, what term should apply to each renewal option? Why?

As noted above, it is critical there is no reduction in 2degrees' 1800MHz spectrum in March 2021. This would significantly disrupt our network operations. Less than three years notice is a very short time to make necessary changes if there is a change in spectrum holding.

Therefore, we support a shorter term rollover of at least 2degrees' 1800MHz spectrum if anything other than full renewal of 2degrees' 1800MHz rights (2x25MHz) is being considered.

2.3 Incumbent Licences

Q8. Should pre-2001 incumbent spectrum licences be extended beyond 2021? If so, why?

2degrees does not support extending the incumbent spectrum licences beyond 2021. These incumbent licences were issued as part of rights given under the 1989 Radiocommunications Act and have had 20 years to transition.

The licences were issued to continue the services that were started prior to July 1989 and at the commencement of the incumbent licences, the right holders were aware that these licences would expire in 2021. A large number of these licencees have already moved out of the band.

The licences use old technology which is prone to interference and do not have modern interference avoidance technologies. As a result of this, very large exclusion zones are required in the vicinity of these licences preventing the roll out of LTE technologies.

Extending these licences continues the inefficient use of this band, preventing more efficient use and service delivery.