



SPEECH

Delivering the future

RadComms 2018

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Spectrum forms the backbone of today's communication framework and as we all know, it is as instrumental to the digital revolution that is already upon us, as oil was to the industrial revolution of the 19th century.

To pick two examples – it is essential to positioning, and to 5G, the most critical of critical infrastructure, the Australian Signals Directorate.

Today, as we look towards a digitalised future, one of our biggest challenges is how to manage this vital, finite resource, to maximise its benefit for all Australians.

The defining question for those involved in managing radio frequency spectrum is: how can we best value and allocate spectrum in a manner which provides sufficient certainty to, for example, encourage investment, whilst at the same time retain flexibility in order to swiftly act on new opportunities as they arise? While at the same time respecting the large variety of uses.

Australia is clearly not alone in this challenge – governments across the world are grappling with similar issues as they face increasing and changing demand for radiofrequency spectrum.

There are a variety of perspectives on how we might increase sharing and coordination of spectrum to realise the potential of new technologies and improve our lives and economic well-being.

Today, I want to guide you through how the department is thinking about the challenging task of spectrum management. Recognising that the department is only one part of the spectrum machine.

Firstly, I will briefly outline what the department perceives are the main challenges and pressures, now and into the future.

I don't presume any of these will come as a surprise to those in this room – and so I won't spend too long telling you what you probably already know.

Secondly, I'll talk you through the key policy objectives or guiding principles if you will, which I consider can assist us in making difficult decisions about spectrum management in the face of these challenges.

And thirdly, I'll discuss a number of crucial steps the department is taking in the short-to-medium term, in conjunction with the ACMA, to enable us to meet the challenges we're facing, but also to ensure that we are indeed, *delivering the future*.

We know a dynamic digital economy will rely on spectrum. And we know the role of government is to manage this highly valued resource for the benefit of the whole community.

Demand for spectrum is growing rapidly, although perhaps some frequencies are more in demand than others.

There is pressure from what I might call traditional uses of spectrum, services such as 4k or even 8k TV and 5G mobile.

And then there are a long list of innovations requiring spectrum: machine to machine comms, a booming wireless broadband sector, data hungry consumers, driverless cars; the needs of the space industry; evolving opportunities in emergency management being just a few examples.

The good news is that this demand for data, bandwidth and speed, is stimulating wireless innovations that goes beyond the radio frequency spectrum!

UK telco O2 announced earlier this year, it had begun early trials in "LiFi" technology – using the infrared and visible light parts of the electromagnetic spectrum for 5G high-speed networks [300-770 terrahertz].

What is clear is that globally, demand for spectrum is going up. The need for increased or different types of sharing opportunities is inevitable and rigid prescriptive frameworks are not going to be able to keep up with the pace of technology advancement.

Locally we have further challenges, such as a vast land mass and a highly dispersed population.

We need to ensure that spectrum is used effectively so that, for example:

- all Australians are able to connect with each other through voice and broadband services, radio and television, staying connected to each other and their communities;
- so that CSIRO can use the world's largest radio telescope at the Square Kilometre Array to pick up minute radio emissions from space;
- so that surf life savers at Lennox Head can use a drone to save two teenage boys stuck in waves almost a kilometre offshore;
- and so that all of us who took a plane to Sydney for this conference arrived in the right place and safely thanks to GPS and radio used by air-traffic control.

The government's challenge is in weighing up the competing demands on spectrum for different uses and industries, be that broadcasters, telcos, satellite, amateur radio enthusiasts or emergency services and Defence – and deciding what the most efficient use of certain bands of spectrum will be, and still allowing garage doors and wireless microphones to operate.

Increasingly then, we must consider the competing needs across private industries, along with demands for allocation of spectrum in the public interest (for public services) – at times, demand for the same spectrum that industry wants. The rapidly evolving uses and demands on spectrum is set to make this task increasingly complex.

And although market mechanisms will help in this task, the allocation and value of spectrum can't be determined independently of the utility of its broader uses and the relative assessment of those.

The ACMA has a very challenging role in performing the day-to-day mechanics of this task now and into the future. The department's own challenge is to equip the regulator with the best possible toolkit in order to achieve success in this role. We must also, of course, advise the government of the day in setting broader, higher level policy objectives and goals that will guide those day-to-day decisions.

That leads me to the second item I want to cover. What are the key policy objectives or guiding principles, which I think can help guide the making of difficult decisions about spectrum management?

Five policy objectives that stand out for me are:

- ensuring efficient allocation and use of spectrum,
- supporting competitive market outcomes generally – including secondary trading in spectrum,
- encouraging investment in infrastructure,
- encouraging the investment in and deployment of new technologies – with a current focus on 5G, and finally
- fostering a culture of industry and user involvement in spectrum management.

Given the time, I want to speak briefly to these today.

The first thing that springs to mind is the efficient allocation and use of spectrum. This is the motto of spectrum management. But there is complexity underpinning that motto.

In order to fulfil this first objective, there is a precursor question – efficient allocation and use of spectrum “for what purpose”?

Answering this question requires judgement, and a weighing up of public and private interests. It is a complex question and one in which the department and Government plays a key role.

The increasing and competing demands for spectrum that I spoke about earlier, are making answering this precursor question more difficult.

Now and into the future I anticipate we will see more and more competition between use cases for the same band. In some cases this will be between similar uses but with quite different business cases – think for example of fixed wireless services vs mobile broadband services.

In other cases it might be between public uses and private interests – for example weather radars competing with 5G mobile services.

Simply looking to market or pricing mechanisms to solve the allocation between these uses will not necessarily deliver the optimal public interest outcome.

The regulator must be equipped with the legislative tools and provided with the policy support to be able to carry out the task of efficiently allocating spectrum. We must provide for the inevitable outcome that technological changes, scientific discoveries as well as evolving policy directions will emerge and, where this presents opportunities, we must have the tools and the courage to act.

This objective also informs the department's work in the international spectrum dialogue. We're actively involved in preparations for the International Telecommunication Union (ITU) World Radiocommunication Conference 2019 (WRC-19) – and with the ACMA and stakeholders, we continue to push for arrangements that will enable efficient use of spectrum.

The policy settings around spectrum allocation and evaluating best use is on a continuing journey from traditional command and control regulation through to more and more market mechanisms being used where appropriate. Big steps were made in the 90s with the Spectrum Management Agency conducting the first of what is now, globally, a common place event: spectrum auctions.

We of course have a big one underway with the 5G auction.

A fit-for-purpose regulatory toolkit will use a healthy mix of command and control; market forces and commons use. We entrust the ACMA to get the proportions right day-to-day, the new rewritten Radiocommunications Act will, subject of course to Parliament's consideration and approval, provide many more options at the ACMA's disposal in all three of these categories, noting numerous new options to involve the market, users and industry in discerning the best use of spectrum.

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The department is not only keen to see the continuation of successful market mechanisms being used in allocating spectrum. The department shares the views expressed by Rod Sims of the ACCC yesterday, that spectrum allocations should result in competitive markets in the business areas it's being used in.

We want allocations of spectrum to produce positive long-term benefits for end users in numerous industries. In many sectors, spectrum is helping innovators to compete in established markets – and also create new markets.

And in relation to supporting competitive markets – we are also firmly intent on encouraging secondary *spectrum* markets. Spectrum trading allows spectrum to be transferred to, and used by, the user who values it most. Over time, this should ensure that more spectrum is employed in the use that brings the greatest benefit to the economy and the community. This ties back to the first policy objective - the most efficient allocation and use of the spectrum.

The proposed new reforms are expected to allow further work, trials and experimentation in this area – whether it be through a single licencing system, potential for longer duration licences or expanded private band management options.

The next policy objective is encouraging investment in infrastructure. This means infrastructure in *all* parts of Australia: regional, remote and metro. Whether it be satellites, fixed links, broadcast, mobile or 5G infrastructure – it is all vital when it comes to spectrum use. Without infrastructure, spectrum cannot be put to use as an enabler of communications and connectivity.

Policy settings need to encourage confidence in the sector to enable businesses and industry to invest in and build critical communications infrastructure.

To this end, the department and the ACMA have to meet the challenge of providing a flexible regulatory environment that supports innovation while at the same time providing the necessary predictability to support long-term investment.

These two forces - flexibility and predictability - are often viewed as opposing forces but, they don't need to be.

We have put a lot of effort into rethinking the complex relationship between flexibility and certainty in the context of the unprecedented digital disruption we are facing.

In the right amounts, regulatory flexibility can yield certainty for industry and investors.

For holders of spectrum, flexibility can provide optionality – options to use spectrum differently over time; options to relinquish spectrum if business models change.

Spectrum licences for 20 years – think of what can change? Remember 1998?

We are confident that the reformed Radiocommunications Act, will provide a flexible regulatory toolkit and a fit-for-purpose regulatory regime that will continue to engender investor certainty.

The fourth policy objective is encouraging the investment in and deployment of new technologies – with a current focus on 5G.

This is a no-brainer. If we do not keep up with advancing technology, we, as a country, will be left behind by our regional and international counterparts – to the detriment of our economy and our community.

The department has worked diligently with the ACMA to make more 5G spectrum available in a timely manner which will help to enable the deployment of 5G technologies.

Globally, the race is on to deploy 5G networks, and the department is keenly focussed on Australia taking its place in the leading pack.

That's one of the many reasons the Government considers continued involvement in international forums to be so important. And why we welcome a multi-stakeholder approach – delegates from industry and other sectors are a valued part of Australia's negotiating team, especially as we prepare for WRC-19.

And finally, the fifth policy objective is fostering a culture of industry and user involvement in spectrum management. The starting point here is regular and meaningful consultation, but it goes far beyond this.

The department is focused, through its reform work, on opening up the doors to industry to be involved in spectrum management. We intend to give substantive meaning to recommendation 1(e) of the Spectrum Review report which recommended providing more opportunities for users and industry to participate in spectrum management.

Of course, advancements in spectrum management, globally, are often slow and incremental.

Many of you will know that Nobel Prize winning economist Ronald Coase suggested applying markets in the allocation of spectrum in the late 1950's. It took three decades for this idea to boil away and distil down into spectrum auctions and the like.

This can be frustrating at times, but can also allow time for testing, experiment and problem solving, resulting in a pathway to change that has a low regulatory and financial impost on the community.

There will be many opportunities for you to be involved in spectrum management in the future. Whether it be private band management through the delegation of spectrum management functions, expanding the successful Accredited Persons scheme or encouraging spectrum users to resolve their interference complaints in the first instance through alternative or appropriate dispute resolution (ADR).

We encourage you to think creatively and carefully about these opportunities and to build businesses cases; to test them and put them to government, the department and the ACMA.

So, that's the state of play as I see it. The challenges are here, they're real and we need to face them. Regulators are facing increasingly difficult pressures in allocating spectrum and balancing competing priorities.

I have suggested some guiding policy objectives that help the department navigate these challenges, and with that in mind, I'd like to detail what we're doing, in conjunction with the regulator, to enable us to meet the challenges we're facing.

Number one; getting 5G spectrum out the door. We're supporting the regulator in conducting a spectrum auction to enable the telco industry to set up world-class 5G networks so that Australians can begin to reap the benefits of this next generation of technology.

Through the Government's 5G Working Group we are bringing together carriers and equipment manufacturers to explore the demand for 5G technologies. Of course, that group is made up of people who work in the telecommunications field and don't need to be convinced of the opportunities 5G brings.

A challenge for us all – government and industry – is to help bring that awareness to the broader community so that the potential beneficiaries of these technologies can work with us on how to deliver those benefits.

In the Working Group, our goal is to examine the regulatory barriers that may hinder the take up of 5G technology and the realisation of the benefits it offers.

The Department is also continuing to coordinate more broadly across the Commonwealth on the use of spectrum to take advantage of upgrades in technologies for the public benefit. To that end, we anticipate publishing the first biennial report of Commonwealth government spectrum holdings in coming months.

We are also involved in difficult choices regarding the use of spectrum bands, particularly when transitioning those bands to future technologies.

An example that springs to mind is the 900 MHz band. Although this band has been flagged as being appropriate for LTE and eventually 5G services, we are keenly aware that there are existing 3G services that use the band.

In cases such as the 900 MHz band, the department expects to work closely with the ACMA and licensees to explore all transition pathways and develop advice for Government on the way forward.

We are also working with states and territories, as well as the Department of Home Affairs and industry, towards development of a model for a federated, inter-operable Public Safety Mobile Broadband capability.

This capability offers significant potential to improve the effectiveness and efficiency of public safety agencies services, in turn benefiting all Australians.

And, as you all know, we're still trying to reform the spectrum management framework. The old framework has served us well, but it is time to update. The 1992 Radcomms Act is prescriptive and rigid. The new Bill will be flexible and efficient.

Under the 1992 Act, reallocating the digital dividend (694-820MHz) took approximately three years with 16 legislative instruments being issued by the Minister or the ACMA. Spectrum not being allocated quickly and easily imposes unnecessary costs on both industry and government.

The new Bill will entrust the ACMA to make the right calls and efficiently allocate spectrum; drawing on its expertise and analysing the merits of committing spectrum to a given use.

But there will be appropriate checks and balances remaining in primary legislation – Government is not looking to vacate this field and nor should it. Spectrum is a valuable public asset with competing uses over which Governments ought to have a say.

The second exposure draft is soon to be released – I pre-warn you here, it is big and will take some reading; but we need your insights, we need your help to get this right before it is introduced to the Parliament.

There have been delays no doubt (it has been talked about eagerly at many RadComms conferences) – some of that has been the drafting complexity in the Bill; but we have also had to weather some of the political tumult on the Hill and the disruption that has had in terms of legislative priorities.

The next draft will contain provisions on broadcasting and we will also be releasing the Transitional and Consequential Bill. This will be the road map to get us from A to B.

I won't get too far ahead of myself talking about the transition as there is a way to go before the reform package is introduced into Parliament.

However, a couple of notes to make:

The reforms will need to be phased in over a five year transition period. This will begin 12 to 14 months after the Bill passes through the Parliament.

We anticipate that the transition of apparatus licences for broadcasting services will occur late in the transition period, following the statutory review of broadcast pricing arrangements.

We expect the proposed transition provisions will also provide the Government with the ability to issue ministerial policy statements from the time of royal assent. This could provide a useful tool to help inform ACMA's implementation of the reforms, particularly providing clarity of the Government's policy objectives.

Similarly, in order to provide a roadmap for the transition process, the requirement for the ACMA to publish a work program each financial year will also have effect from the time of royal assent.

Of course, the ACMA's evolution of its FYSO in recent years has positioned it very well to deliver on this requirement.

The Bill provides many options for the regulator, not all of which need to be taken up in the short term, or indeed at all – this is part of future-proofing the framework. We cannot predict exactly what tools the regulator will need in ten, five or truly, even in two years-time; but we're confident that by providing a range of tools, the regulator will be able to choose the right ones at the right time.

I'm aware change can be difficult and it is understandable that industry members might be nervous. But again, we don't expect wholesale changes overnight – history tells us that advancements in spectrum management are incremental – and we have no reason to expect this to change.

We are committed to working closely with industry and stakeholders to make the transition to the new framework together. In the meantime, I strongly encourage you to get involved with the upcoming consultation and help us get this framework fit-for-purpose.

So in conclusion, I suspect that at each and every RadComms conference for at least the last 10 years someone has said, with a hint of worry, that demand for this finite resource is growing rapidly – and maybe we will run out!

Fears of the spectrum crunch have been canvassed for years – 2012 seems to have been a bit of a high point – but we have managed to find a way through. I have confidence that we will continue to find ways to navigate the complex and competing demands for spectrum. But this won't be possible without reform. And it won't be successful if we focus only on the big operators and lose sight of the myriad small use cases.

So I hope I have made clear this morning how keenly aware the department is of the need to ensure policy keeps up with rapid technological change and our commitment to meeting the challenges by delivering comprehensive spectrum reform.

Reform which – in short – will simplify regulatory arrangements and streamline access to spectrum for new technologies.

I hope I have also made clear the department is equally committed to ensuring the process of developing this reform is as forward-thinking and consultative as possible. The same is the case for the department's forward work program in this space, including on 5G and international harmonisation.

Across the board, I think we all want to ensure the resulting spectrum management framework is fit-for-purpose and will enable all Australians to participate in the future global digital economy in a meaningful and productive way.