

STOP 5G NORTHERN RIVERS GROUP – FORMAL SUBMISSION TO THE FLETCHER INQUIRY

The Stop 5G NR group (representing more than 2300 members) is opposed to the 5G roll out on many grounds and has formally documented our objections to local and federal authorities over the past six months plus.

For the purposes of this Inquiry, however, we have focused our concerns on the potential hazards of rolling out 5G in relation to its capability, capacity and deployment, with a particular focus on use cases for enterprise and government.

Lack of use cases for 5G

It is well known in the ITC industry that the business case for 5G deployment is uncertain. In December 2018, after spending \$386 million on the 5G spectrum at Auction, Telstra executives admitted to not knowing how 5G mobile technology will be used.¹

At the 5G Asia event held in Singapore last month, carriers acknowledged there is no compelling 5G business case, agreeing that they are still unclear about how to monetise 5G in both consumer and enterprise segments.² A 2018 McKinsey study³ showed that 60% of global Chief Technology Officers felt that the 5G business case is the biggest challenge in their 5G strategy. In Singapore, StarHub Mobile has suggested the government provides the 5G spectrum free of charge given uncertainty over 5G business cases and the risk that poses⁴.

At the Huawei Analyst Summit in April 2018, Huawei Chairman Eric Xu stated that consumers will ultimately “find no material difference between 5G & LTE.”⁵ He added that he did not see many clear use cases for applications which can only be supported

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<https://www.afr.com/companies/telecommunications/telstra-admits-uses-for-5g-are-largely-unknown-20181218-h198un>

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<https://www.lightreading.com/mobile/5g/5g-business-models-still-elude-asian-telcos/d/d-id/754033>

3

<https://www.mckinsey.com/industries/telecommunications/our-insights/cutting-through-the-5g-hype-survey-shows-telcos-nuanced-views>

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<https://www2.imda.gov.sg/-/media/Imda/Files/Regulation-Licensing-and-Consultations/Consultations/Consultation-Papers/Second-Public-Consultation-on-5G-Mobile-Services-and-Networks/Second-5G-Consultation-StarHub-Mobile-Pte-Ltd.pdf>

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<https://www.mobileworldlive.com/featured-content/home-banner/huawei-ceo-downplays-importance-of-5g/>

with 5G. Most of the technologies hyped as “only made possible by 5G” (eg smart cars, smart homes and cities, Virtual Reality, Augmented Reality, 3D video and the Internet of Things) do not require 5G and can be achieved with 4.9G and WiFi.⁶ Further, there is no guarantee that the expected use cases for 5G will be developed into viable business models.

For example, 5G is not needed for driverless vehicles and automotive makers are not basing their plans for vehicle autonomy on the availability of 5G coverage.⁷ Remote surgery using 5G (frequently the subject of industry 5G advertorials), whilst technologically possible, is completely impractical. Frost & Sullivan analyst Michael Jude has pointed out that healthcare organisations would be “crazy” to try remote surgery over a wireless network. Connection reliability would require antennas to be built on “practically everything”, and even then “it would be really hard to do with any kind of acceptable reality”⁸.

There are no publically available estimates of the size of the 5G IoT market. Axicom whitepaper, “5G: How ready is Australia for the next generation?” states that many in the industry are struggling to determine where they will generate a return on investment and for the time being the push seems to be more “vendor driven than demand driven”.⁹

The message that 5G is essential for the construction, mining, manufacturing, agriculture and utilities sectors is one touted by the ITC industry rather than the sectors themselves. Businesses in these sectors already have good self-provided IoT solutions, available within 4G networks and WiFi. As 5G solutions will likely be more expensive and complex than WiFi, businesses may choose wired connectivity or self-provided WiFi systems over 5G connectivity.

The business models needed to make 5G commercially viable may never evolve.

The benefits of fibreoptic networks

It is worthwhile considering that Fibre to the Home (FTTH) surpassed 5G wireless speeds years ago. Fibreoptic networks are faster, more cybersecure, more reliable, more

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<https://www.digitalpulse.pwc.com.au/what-do-we-really-need-5g-for-report/>

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<https://www.edn.com/electronics-blogs/5g-waves/4461460/5G-and-autonomous-vehicles-might-not-go-hand-in-hand#comments>

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<https://searchhealthit.techtarget.com/feature/Promises-for-5G-in-healthcare-are-great-but-its-still-early-days>

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<https://www.thinksmartmarketing.com.au/wp-content/uploads/WP-5G-Axicom-FINAL.pdf>

future-proof and more energy efficient than wireless networks. In terms of speed, wireless services will never compete with high-speed optical fibre networks, which can ultimately be much time faster than 5G and bring speeds of 10 gb/second to homes and businesses, far more economically than infrastructure intensive upgrades to wireless services.¹⁰

In his paper, *Re-Inventing Wires: The Future of Landlines and Networks*¹¹, Timothy Schoechele, PhD, illustrates how wireless access service is not an adequate substitute for wires, and should be an adjunct to wired access service. He recommends bringing fibre as close to the user as possible, to use a copper tail for short distances where necessary, and to resort to wireless technology as a last resort.

In the Forward to the report, Frank Clegg (Past President, Microsoft Canada) states:

“This paper sets the record straight ... offering consumers, business leaders and policy makers the critical facts they need to rethink a more intelligent and secure future with reliable, secure, wired communications more resilient to storm, flood and fire, and reducing the enormous carbon foot print from the present wireless approach. It also demonstrates why the mistaken upcoming 5G frenzy, with its millions of small cell antennas, destined to clutter all neighborhoods and public right-of-ways, is dangerous, wasteful and unnecessary.”

Paul Heroux Ph.D. (Professor of Electromagnetic Toxicology, Faculty of Medicine, McGill University) has explained just this year how “Any sophisticated society in the future will need and will depend on optical fibre.”¹²

Predicted increase in Energy Costs from 5G deployment

A recent study¹³ conducted by Vertiv and 451 Research found that 5G will be far more energy-intensive than previous generations of wireless connectivity. More than 90 per cent of telecommunications operators fear the roll-out of 5G technologies will lead to much higher energy costs. Vertiv’s internal analysis discovered that the move to 5G is likely to increase total network energy consumption by 150 to 170 per cent by 2026.

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<https://www.globalresearch.ca/telecom-industry-did-no-research-health-impacts-5g/5673706>

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<http://electromagnetichealth.org/wp-content/uploads/2018/05/Wires.pdf>

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Interview with Dr Heroux, *Harmful Effects of 5G and Wireless*, 5G Crisis: Awareness and Accountability Summit, August 2019

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<https://www.cio.com.au/article/658317/5g-use-will-increase-energy-costs-study>

A recently updated 2016 peer-reviewed study found that without dramatic increases in efficiency, the ICT industry could use 20% of all electricity and emit up to 5.5% of the world's carbon emissions by 2025, an increase directly linked to the 5G-driven Internet of Things¹⁴.

The ITC has not proposed any solutions to the potentially enormous 5G carbon footprint. Its only response has been to speculate that future technological innovations and Artificial Intelligence *may* succeed in reducing energy consumption. This response is unsurprising considering the ITC industry would not have to bear increased energy costs itself, and would stand to commercially benefit from future upgrades and replacements designed to reduce energy consumption.

Increased Electronic Waste

5G and related devices would also create a massive increase in electronic waste. Firstly, from toxins released during mining and manufacturing of electronics. Secondly, from the discarding of products (due to built-in and perceived obsolescence) containing toxic materials.

The problem with 5G connectivity

Constant connectivity can be delivered with a mix of 4G and WiFi, but it cannot be delivered through 5G simply because the higher frequencies of 5G make it more difficult to achieve coverage.

In his book, *The 5G Myth: And why consistent connectivity is a better future*, Professor William Webb argues the increases in speed and capacity that 5G advocates argue for are less important than consistent connectivity (the ability to be connected at a reasonable speed everywhere).

Professor Webb argues that rather than aiming for ever-faster connections, better coverage low-coverage locations such as rural areas would generate greater economic value and be preferred by most consumers.

Costs of 5G deployment

The roll out of 5G requires the deployment of hundreds of thousands of new small cell base stations. The cost of deploying 5G infrastructure in the density required by high-

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<https://www.climatechangenews.com/2017/12/11/tsunami-data-consume-one-fifth-global-electricity-2025/>

band spectrum 5G is estimated to be four to six times higher than for LTE macro-cell deployment.¹⁵

Carriers such as Telstra have made it clear that they will not expect customers to pay more for 5G subscriptions than for 4G subscriptions, yet carriers have to spend enormous amounts of money on new base stations to roll-out 5G. Clearly, increased spending with no new revenue is not a good business case.

In addition, there is growing community resistance to dense deployment of base stations due to concerns about potential health risks of 5G technology. A survey by Roy Morgan, published in August 2019, found that 26.1% of Australians are concerned about the health impacts of 5G.

There are no independent long-term safety studies on 5G, and hundreds of independent scientists worldwide are warning that 5G poses serious risks to human health and the environment. ARPANSA's persistent dismissal of the science has caused the public to lose confidence in its ability to protect them. ARPANSA declarations on 5G safety, such as "there are no established health effects from the radio waves that the 5G network uses," are seen as farcical and reminiscent of tobacco industry denials in the 1950s.

Despite the absence of a clear business case or any 5G applications to increase revenues, or cover the cost of building the new networks, carriers are pressing on with the roll out.

Unfounded predictions of economic growth

Industry and government claims of 5G driven productivity and economic growth are unsupported. The lack of 5G use cases makes predictions of economic benefits from 5G appear fanciful.

The most significant impact of 5G (if predicted use cases manifest) is likely to be widespread job losses from AI and automation, for example in transport, manufacturing, retail and customer service. Whilst AI and automation may result in increased profits for some industries, widespread job losses is likely to negatively impact the Australian economy.

To date, the Federal Government has not conducted a meaningful cost-benefit analysis of how 5G would impact the economy.

Conclusion and Recommendations

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<https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/are-you-ready-for-5g>

If the predicted risks of 5G manifest, it will be almost impossible to roll back. At this point in time, there is no clear business case or market demand for 5G. If the headlong rush into a nation-wide rollout proceeds, it could turn into one of the great white elephants of Australian telecommunications history.

Fools rush in where angels fear to tread. Apparently there is a 5G “race” on, though nobody seems to understand what we are racing towards. Not all countries have joined the 5G stampede. Countries that rush in will be the first to discover problems that are likely to be costly, time consuming and resource heavy.

Predicted 5G use cases may never evolve. Early over-investment in a 5G network in the hope that future innovations will enable monetisation of 5G could push some operators to bankruptcy (as was the case with 3G). Australia would be wise to wait for evidence of return on investment from potential use cases before considering 5G. In the meantime, it can focus on developing 4G and WiFi connectivity, without the risks of 5G.

The Federal Government should undertake a risk analysis of the potential impact of 5G on the Australian economy, taking into account:

- whether there is a business case for its roll out;
- whether 5G's connectivity problems can be solved;
- whether 5G has any realistic use cases or benefits that 4G and WiFi cannot deliver;
- potential benefits of fiberoptic cable, 4G and WiFi;
- how increased energy usage and electronic waste from 5G will be managed;
- the impact of job losses from AI and automation;
- the health and environmental risks of 5G;
- potential higher public health costs (should any of the predicted health effects happen);
- effects on the telecommunications sector should any carriers face bankruptcy after rolling out 5G; and
- the possibility that carriers will seek government funding to fill any financial black holes that appear.

- SUBMISSION ENDS HERE -