

Infrastructure, Transport, Regional Development, Communications and the Arts

Committee Inquiries Question on Notice

Standing Committee On Communications and the Arts

Inquiry Into Co-investment in Multi-carrier Regional Mobile Infrastructure

Wednesday, 24 May 2023 House of Representatives

Question:

CHAIR: It's a little tangential, but we've heard evidence or it's been raised previously that the coverage of a signal is determined by the amount of power that goes into a tower. I've got no idea of electrical engineering. I'm completely ignorant. But what I've been informed is that, if you've got a lot of juice going into a tower, then it is capable of producing a bigger signal and that a telco basically has the ability to decide that it can have a lower power tower, which will then contract the signal. Are you aware of that? Is that right, wrong, possible? Whom do we talk to?

Ms Hyland: It's also the spectrum that's used.

CHAIR: Yes, but the reason I raise this specifically is that, if it's within a telco's purview to basically crank up the juice and spread a signal a bit further simply by paying for a little bit more electricity, that will obviously help more people get more coverage without having to build a new tower. But I don't know if it's right. You're taking it on notice?

Ms Hyland: I'm happy to take it on notice.

Answer:

Yes, increasing the power can increase coverage. However, there are a number of other factors which must be considered when increasing power, which means this may not be a viable solution in all cases.

These factors include:

1. Increasing the power may also increase the potential for interference to other cells, depending on the location and proximity to licence area boundaries.
2. Mobile Network Operators are restricted by the maximum power limits on their spectrum licences (as well as other restrictions if they are close enough to licence area boundaries).
3. The coverage is also limited by the power of the user device (e.g. handset) transmitting back to the base station, so the cell is "uplink-limited".
4. The base station equipment itself is rated to certain power levels so power increases may not even be possible.
5. If increasing the coverage area captures more user in a cell, then it may reduce the throughput per user for the existing users under the original coverage area.
6. Increasing power may not extend the coverage beyond terrain obstructions.

As such, it's unlikely to be the case that regional coverage issues would be resolved in any widespread manner by simply turning up the power on base stations, or that regional coverage issues could be resolved by Mobile Network Operators paying more for electricity.