

COMMUNITY INFORMATION SHEET • CONNECTIVITY

Mobile networks explained — 4G, 5G and the road to 6G

What the towers actually do and what's really changing between the Gs

The key idea: wireless is mostly fibre

A mobile network is thousands of radio sites (towers, rooftop antennas, small cells), each connected back to the core network, almost always by **fibre**. The radio link is only the last few hundred metres; everything else travels the same fixed networks this series describes. Mobile networks are also how the digital economy reaches the physical world: sensors, farms, vehicles and industry connect through them to data centres.

What changes between the Gs

Each generation adds capacity and cuts delay. **4G** made mobile video normal. **5G** adds much more capacity, lower latency and support for huge numbers of devices, which is why it arrives with more, smaller sites (**small cells** on poles and buildings) alongside traditional towers. **6G** is next: standards are being written now, with commercial networks expected around 2030. Expect more capacity again, AI built into how networks run and new sensing abilities, not a new tower boom overnight. (3G, meanwhile, has been switched off in Australia.)

What communities see and who approves it

A surprise in Australian law: carriers can install "**low-impact facilities**" (small antennas, equipment cabinets, some rooftop gear) under federal telecommunications powers *without council planning approval*. Councils and neighbours get notification rights, not a veto. New towers and larger structures do go through state/local planning. Health exposure limits are set nationally by **ARPANSA** and every licensed site's details and compliance reports are public on the national RFNSA database.

The straight story on 5G and health

5G uses radio frequencies in the same broad family as TV, Wi-Fi and earlier mobile generations, at power levels regulated well below ARPANSA's science-based limits, typically a small fraction of them. Independent measurement, published site by site, is the answer to concern: it exists and communities are entitled to point at it and ask questions. DII's separate EMF Community Explainer covers this in depth.

What good practice looks like

- Carriers notify early and genuinely consult on siting, even where the law doesn't require approval.
- Site EME reports referenced and explained in plain English, not just filed.
- Co-location on existing towers preferred before new structures are proposed.
- Coverage claims matched by published maps and real measurement.

Questions to ask

Is this facility low-impact (notification) or does it need planning approval? What does the site's EME report say and where do I find it? Was co-locating on an existing structure assessed? What coverage improvement is actually promised for us?

Want to know more? ARPANSA publishes the exposure standard and plain-English explainers; rfnsa.com.au lists every mobile site; the ACMA regulates spectrum and compliance. This sheet is general information, not legal or planning advice; a specific proposal is confirmed by qualified assessment.