

EMF Fact Sheet

Power lines emit invisible electromagnetic fields (EMFs) that are strongest directly underneath and decrease rapidly with distance, often fading to background levels within a few hundred feet (around 100 meters), though higher voltage lines reach further, sometimes up to 700 feet or more, with levels dropping to ambient (like household appliances) at moderate distances. While strong evidence for health risks like cancer from typical residential EMF exposure is lacking, some studies suggest potential links to childhood leukemia at very close proximity (under 50 meters), prompting caution and distance as a primary way to reduce exposure.

No Federal Standards:

The U.S. EPA notes there are no federal EMF limits for power lines, though some states mandate right-of-way widths

Potential Effects on Brain Structure & Function:

- **Blood-Brain Barrier (BBB) Permeability:**

RF-EMFs can increase BBB leakage, allowing substances like albumin to enter the brain.

- **Neuronal Damage:**

Studies show potential for neuronal loss (e.g., pyramidal cells) and changes in synaptic structure, particularly in the hippocampus.

- **Neurotransmitter & Calcium Levels:**

EMFs can alter neurotransmitter levels and impair calcium homeostasis, affecting cell signaling.

- **Oxidative Stress:**

Increased reactive oxygen species (ROS) and oxidative stress are noted mechanisms, potentially damaging cells and DNA.

Key Distances & Guidelines:

- **For Health Concerns (EMFs):**

- >200 meters (650 ft): EMFs generally fade significantly.
- 700-1000+ ft: Recommended by some sources for reduced exposure.
- <50 meters: Expected to have typical magnetic fields, says Australia's health authority.
- ~300m: Some studies focus on childhood leukemia within this range.

- **For Physical Safety (Regulatory):**

- 12 meters (~40 ft): Minimum clearance for high-voltage lines (e.g., >66kV) from structures, primarily for preventing electric shock/fires, not EMFs

- **Factors to Consider:**

- **Voltage: Higher voltage means stronger EMFs, requiring greater distance.**

- Type of Line: Transmission lines (large towers) differ from neighborhood distribution lines (smaller poles).
- EMF Meters: You can rent meters to measure actual magnetic fields in a potential home.
- Secondary Concerns: Noise (sizzling in wet weather), visual blight, and potential property value impacts.

