**Grand Tetons: Largest Cell Tower Expansion in National Park History Letter on Environmental Impact**

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 Environmental Health Trust submitted [a scientific letter](https://ehtrust.org/wp-content/uploads/2019.04.10-Dr.-Devra-Davis-Comment-Submission-to-the-NPS.pdf) to the Grand Teton National Park Telecommunications Infrastructure Plan proposing to build wireless telecommunications facilities (cellular towers) in the park. The letter outlines the scientific evidence which indicates serious environmental and health impacts from the installation of cellular towers in the park.

Grand Teton National Park is slated for a cell tower infrastructure project which could be “the biggest single expansion of cell tower infrastructure in a national park in history,” [according](https://trib.com/news/state-and-regional/grand-teton-examines-plan-to-improve-cell-service/article_c0be033d-d331-5fa0-a3ea-3e38d145e423.html) to Jeff Ruch, Executive Director  of Public Employees for Environmental Responsibility (PEER).

The National Parks issued an environmental assessment [report](https://parkplanning.nps.gov/showFile.cfm?projectID=66133&MIMEType=application%2Fpdf&filename=GRTE%20Telecommunications%20Infrastructure%20Plan%20EA%20FINAL%203%5F1%5F19%20%20Public%2Epdf&sfid=359581) that states  human health and safety concerns associated with this plan are  “considered negligible”.

*News Reports*

* [“Grand Teton examines plan to improve cell service”](https://trib.com/news/state-and-regional/grand-teton-examines-plan-to-improve-cell-service/article_c0be033d-d331-5fa0-a3ea-3e38d145e423.html) Jackson Hole DailyVia Wyoming News Exchange, March 16, 2019
* [“Group: Public in dark about cell tower plans in Grand Teton”](https://www.seattletimes.com/business/group-public-in-dark-about-cell-tower-plans-in-grand-teton/) Seattle Times, March 23 2018

**The Grand Teton National Park Telecommunications Infrastructure Plan**

“The proposal also includes installation of wireless telecommunications facilities and associated infrastructure at nine developed areas in the park that currently support critical operations and/or see a high volume of park visitors, as well as a connection to the south entrance of Yellowstone National Park. The proposed locations are Flagg Ranch, Colter Bay, Jackson Lake Lodge, Signal Mountain, North Jenny Lake, South Jenny Lake, Beaver Creek, Moose, and Kelly.”

**Click on these links for  Grand Teton Park Resources**

* [National Park Service Website: Grand Teton National Park Telecommunications Infrastructure Plan](https://parkplanning.nps.gov/document.cfm?parkID=68&projectID=66133&documentID=93639)
* [GRTE Telecommunications Infrastructure Plan EA FINAL](https://parkplanning.nps.gov/showFile.cfm?projectID=66133&MIMEType=application%2Fpdf&filename=GRTE%20Telecommunications%20Infrastructure%20Plan%20EA%20FINAL%203%5F1%5F19%20%20Public%2Epdf&sfid=359581) Grand Teton National Park Telecommunications Infrastructure Plan and Environmental Assessment
* [GRTE Telecommunications Infrastructure Plan EA Appendix C.](https://parkplanning.nps.gov/showFile.cfm?projectID=66133&MIMEType=application%2Fpdf&filename=GRTE%20Telecommunications%20Infrastructure%20Plan%20EA%20Appendix%20C%2E508%2E2%5F1%5F19%20%281%29%2Epdf&sfid=359580)(Site technical drawings and photo simulations)

Dear Mr. Vela & National Park Staff,

Environmental Health Trust (EHT) is a nonprofit Think Tank and policy organization dedicated to identifying and reducing environmental health hazards. EHT provides independent scientific research and advice on controllable environmental hazards to local, state and national governments. Today, we write to advise you of scientific grounds for major health and environmental concerns about the proposal for the installation of wireless telecommunications facilities and associated infrastructure at nine developed areas in the park and to express our grave concerns about this planned expansion of mobile communications in Grand Teton National Park. You may recall your discussions last year with me about the need to limit exposures to wildlife and fauna from wireless radiation that took place when we met as part of the City Kids final ascent of the Grand.

We fully recognize there is a need for communication for emergency purposes. We further recognize that the Park plays a unique role in our country and in our lives by providing a wilderness that is apart from the normal hectic life that many Americans lead today. We are deeply concerned that by expanding wireless communications this proposal will irrevocably impair the wilderness experience and that there are wired solutions that would be far less damaging.

The transmissions to and from these proposed microwave wireless installations will be emissions that are an environmental pollutant known to cause cancer (in both experimental animals and humans) and other adverse health and environmental effects (e.g., on birds, bees, trees) according to internationally recognized authoritative research, including studies conducted by the U.S. National Toxicology Program, which is the nation’s premiere testing program.

In light of the scientific documentation showing harmful effects, EHT writes today to advise regarding technical scientific information on impacts to human health, wildlife and the environment, explaining why more than 240 expert scientists are calling for immediate reductions in exposures to microwave wireless radiation.

**Documented Impacts to Wildlife and the Environment**

We would like to make you aware that there is growing literature showing the adverse impacts of microwave radiation on animal and bird behavior and physiology, as well as plants and trees. As the Natural Resources Defense Council and the Public Employees for Environmental Responsibility have argued, an environmental impact assessment should be performed before building these networks. Peer-reviewed [research](https://ehtrust.org/science/research-on-wireless-health-effects/) links EMF emissions to myriad adverse environmental and health effects. Environmental effects include disruptions to reproduction, development, orientation, and migration of animals, and damage to plants and crops.

Albert Manville, former U.S. Fish and Wildlife Service agency lead on avian-structural impacts, wrote [“A BRIEFING MEMORANDUM: What We Know, Can Infer, and Don’t Yet Know about Impacts from Thermal and Non-thermal Non-ionizing Radiation to Birds and Other Wildlife”](https://ecfsapi.fcc.gov/file/12270470130362/Manville%207-14-%202016%20Radiation%20Briefing%20Memo-Public.pdf) documenting the body of research and concluding:

“There is an increasing body of published laboratory research that finds DNA damage at low intensity exposures — well below levels of thermal heating — which may be comparable to far field exposures from cell antennas. This body of work would apply to all species, including migratory birds, since DNA is DNA, whether single-strand or double helix. The first study to find such effects was conducted by H. Lai and N.P. Singh in 1995 (Lai and Singh 1995). Their work has since been replicated (e.g., Lai and Singh 1996, as well as in hundreds of other more recent published studies), performed in at least 14 laboratories worldwide. The take-home message: low level transmission of EMF from cell towers and other sources probably causes DNA damage. The laboratory research findings strongly infer this relationship. Since DNA is the primary building block and genetic “map” for the very growth, production, replication and survival of all living organisms, deleterious effects can be critical.”

**Please note the following published research studies.**

* [“A review of the ecological effects of RF-EMF](https://www.sciencedirect.com/science/article/pii/S0160412012002334)” 2013 review of 113 published studies found in 65% of the studies (50% of the animal studies and about 75% of the plant studies) RF-EMF had a significant effect on birds, insects, other vertebrates, other organisms and plants  ([Cucurachi 2013)](https://www.sciencedirect.com/science/article/pii/S0160412012002334). The review paper cites development and reproduction in birds and insects as the most strongly affected endpoints.
* A 2012 Review [“Impacts of radio-frequency electromagnetic field (RF-EMF) from cell phone towers and wireless devices on biosystem and ecosystem – A Review”](http://www.biolmedonline.com/Articles/Vol4_4_2012/Vol4_4_202-216_BM-8.pdf) on 919 research papers found 593 showed impacts, 180 showed no impacts, and 196 were inconclusive studies.”
* Studies on bees have found behavioral effects ([Kumar 2011](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3052591/), [Favre 2011)](https://link.springer.com/article/10.1007%2Fs13592-011-0016-x#page-1), disrupted navigation [Goldsworthy 2009](https://ecfsapi.fcc.gov/file/7520958012.pdf), [Sainudeen 2011](http://ipublishing.co.in/jesvol1no12010/EIJES2044.pdf), [Kimmel et al. 2007](http://www.partecipiamo.it/cultura/renzo_barbattini/api_e_frequenze_elettromagnetiche_002.pdf)), decreasing egg-laying rate ([Sharma and Kumar, 2010](http://www.gammel.felo.no/2010_Bier%20Sharma-Kumar-%7Cfelo%7Ccontent%7Cdownload%7C3923%7C33892%7Cfile%7C2010_Bier%20Sharma-Kumar.pdf.pdf)) and reduced colony strength after RF exposures ([Sharma and Kumar, 2010](http://www.gammel.felo.no/2010_Bier%20Sharma-Kumar-%7Cfelo%7Ccontent%7Cdownload%7C3923%7C33892%7Cfile%7C2010_Bier%20Sharma-Kumar.pdf.pdf), [Harst et al. 2006](http://www.next-up.org/pdf/ICRW_Kuhn_Landau_study.pdf)).
* A study focusing on RF from cellular antennas found increased sperm abnormalities in mice exposed to RF from GSM antennas ([Otitoloju 2010)](https://www.ncbi.nlm.nih.gov/pubmed/19816647).
* “[Exposure of Insects to Radio-Frequency Electromagnetic Fields from 2 to 120 GHz](https://www.nature.com/articles/s41598-018-22271-3)” published in Scientific Reports is the first study to investigate how insects (including the Western honeybee) absorb the higher frequencies (2 GHz to 120 GHz) to be used in the 4G/5G rollout. The scientific simulations showed increases in absorbed power between 3% to 370% when the insects were exposed to the frequencies. Researchers concluded, “This could lead to changes in insect behavior, physiology, and morphology over time….”
* Researchers published a study on [frogs](https://europepmc.org/abstract/MED/20560769/reload=0;jsessionid=jv2SP5fEaIu2vDSfoszx.24) in Electromagnetic Biology and Medicine exposing eggs and tadpoles to electromagnetic radiation from cell phone antennas for two months, from the egg phase until an advanced phase of tadpole and found low coordination of movements, an asynchronous growth, resulting in both big and small tadpoles, and a high mortality rate. The authors conclude, “these results indicate that radiation emitted by phone masts in a real situation may affect the development and may cause an increase in mortality of exposed tadpoles.”

We also want to bring your attention to the growing body of literature showing the impacts on trees and plants. Here again, experimental literature has found that rhizomes, nitrification and other critical processes to plant growth and health are affected by cell phone like radiation under controlled conditions. There have been over one hundred studies that have shown this and most recently a [field study](https://www.sciencedirect.com/science/article/pii/S0048969716317375#!) that showed under controlled conditions, trees that are closer to cell phone towers start to die more readily; and this can be seen if one looks at the branches of the trees closest to the antennae of the cell phone tower with the fake tree at the Stilson parking lot off Hwy 390.

**Please note these published studies:**

* A field monitoring study spanning 9 years involving over 100 trees ([Waldmann-Selsam 2016](https://www.ncbi.nlm.nih.gov/pubmed/27552133)) found trees sustained significantly more damage on the side of the tree facing the antenna, leaving the entire tree system prone to degradation over time. Documentation of tree damage from base stations is made visible in the Report “Tree Damage Caused by Mobile phone base stations” [(Breunig, 2017).](http://kompetenzinitiative.net/KIT/wp-content/uploads/2017/06/2017_Observation_Guide_ENG_FINAL_RED.pdf)
* A study on Aspen trees near Lyons, Colorado entitled [“Adverse Influence of Radio Frequency Background on Trembling Aspen Seedlings ”](https://www.hindawi.com/journals/ijfr/2010/836278/) published in the *International Journal of Forestry* found adverse effects on growth rate and fall anthocyanin production concluding that, “results of this preliminary experiment indicate that the RF background may be adversely affecting leaf and shoot growth and inhibiting fall production of anthocyanins associated with leaf senescence in trembling aspen seedlings. These effects suggest that exposure to the RF background may be an underlying factor in the recent rapid decline of aspen populations. Further studies are underway to test this hypothesis in a more rigorous way.”
* An analysis of 45 peer-reviewed scientific publications (1996-2016) on changes in plants due to the non-thermal RF-EMF effects from mobile phone radiation entitled “[Weak radiofrequency radiation exposure from mobile phone radiation on plants](https://www.ncbi.nlm.nih.gov/pubmed/27650031?dopt=Abstract) concludes, “Our analysis demonstrates that the data from a substantial amount of the studies on RF-EMFs from mobile phones show physiological and/or morphological effects (89.9%, p < 0.001). Additionally, our analysis of the results from these reported studies demonstrates that the maize, roselle, pea, fenugreek, duckweeds, tomato, onions and mungbean plants seem to be very sensitive to RF-EMFs. Our findings also suggest that plants seem to be more responsive to certain frequencies…”

**Electromagnetic Fields Alter Animal and Insect Orientation**

*Science of the Total Environment* published environmental scientist Alforso Balmori’s  “[Anthropogenic radiofrequency electromagnetic fields as an emerging threat to wildlife orientation](https://www.sciencedirect.com/science/article/pii/S0048969715002296),” which states, “Current evidence indicates that exposure at levels that are found in the environment (in urban areas and near base stations) may particularly alter the receptor organs to orient in the magnetic field of the earth. These results could have important implications for migratory birds and insects, especially in urban areas, but could also apply to birds and insects in natural and protected areas where there are powerful base station emitters of radiofrequencies. Therefore, more research on the effects of electromagnetic radiation in nature is needed to investigate this emerging threat.”

Multiple research studies have documented how animals magnetoreception can be disrupted by external electromagnetic fields from [mice](https://www.nature.com/articles/srep09917) to [cows](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2667019/) to [dogs](https://frontiersinzoology.biomedcentral.com/articles/10.1186/1742-9994-10-80) to [birds](https://www.ncbi.nlm.nih.gov/pubmed/24942848?dopt=Abstract). Electromagnetic exposure is especially disruptive to migratory birds. Electromagnetic fields have been shown to disrupt the magnetic compass orientation used by birds to navigate., Researchers have suggested this disruption of magnetoreception is due to cryptochrome photoreceptors that allow birds to use built-in receptors as a biological compass.

In 2012 the government of India’s Ministry of the Environment and Forest issued a [report](http://www.moef.nic.in/downloads/public-information/final_mobile_towers_report.pdf) on the potential impacts of communication towers on wildlife, citing hundreds of research studies that found adverse effects. Recommendations from the Ministry include, “Introduce a law for protection of urban flora and fauna from emerging threats like ERM/EMF as conservation issues in urban areas are different from forested or wildlife habitats.”

A [2017 report to UNESCO](https://ehtrust.org/wp-content/uploads/Mt-Nardi-Wildlife-Report-to-UNESCO-FINAL.pdf) by botanist Mark Broomhall details the association between increasing amounts of electromagnetic radiation from cellular antennas on the Mt. Nardi tower complex and species disappearance and exodus from the Mt. Nardi area of the Nightcap National Park World Heritage Area during a 15-year period (2000-2015). He estimates “in both volume and species that from 70 to 90 % of the wildlife has become rare or has disappeared from the Nightcap National Park within a radius of the Mt. Nardi tower complex. This statement can be summarised with concrete data: 3 bat species once common have become rare or gone, 11 threatened and endangered bird species are gone, 11 migratory bird species are gone, 86 bird species are demonstrating unnatural behaviours, 66 once common bird species are now rare or gone.” The Report concludes, “With these short explanations of events we can appreciate that the effects of this technology and its application on Mt. Nardi over the last fifteen years, affect not only the top of the life chain species but they are devastating the fabric of the continuity of the World Heritage, causing genetic deterioration in an insidious, massive and ever escalating scale. To truly understand what these studies reveal is to stare into the abyss.”

It is very important that in considering antenna placement, there be a full environmental assessment on migratory animal patterns (from the smallest to the largest) and not simply on birds and mammals like the pronghorn but also on impacts to amphibians and insects.

**Wireless Radiation is Known to Harm Humans and Wildlife**

Human health effects include impaired reproduction, increased incidence of brain cancer, DNA breaks, oxidative stress and immune dysfunction, altered brain development, sleep changes, hyperactivity, and memory and cognitive problems. Since the WHO/IARC [classified EMF as a Group 2B Possible Carcinogen](https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(11)70147-4/fulltext?_eventId=login) in 2011, the peer-reviewed research connecting wireless exposure to cancer has significantly strengthened and several scientists have published documentation that the weight of current peer-reviewed evidence supports the conclusion that radiofrequency radiation should be regarded as a human carcinogen.,,

* The 10 year $30 million National Institute of Environmental Health Sciences National Toxicology Program’s (NTP) Studies of the Toxicology and Carcinogenicity of Cell Phone Radiation, found that RFR was associated with “clear evidence” of cancer due to the increased malignant schwannomas found in RFR-exposed male rats. The brain (glioma) cancers and tumors in the adrenal glands were also considered evidence of an association with cancer. In addition, exposed animals had significantly more DNA damage, heart damage, and low birth weight.
* The Ramazzini Institute published its [findings](https://www.sciencedirect.com/science/article/pii/S0013935118300367?via%3Dihub) that animals exposed to very low-level RFR developed the same types of cancers as reported by the NTP.
* Long-term [research](https://www.hindawi.com/journals/bmri/2017/9218486/) on humans who have used cell phones has found increased tumors—schwannomas and glioblastomas—the same cell type as found in the NTP and Ramazzini Institute studies. Persons who started using cell phones under age 20 had the highest risk.
* A 2015 Jacobs University [study](https://www.sciencedirect.com/science/article/pii/S0006291X15003988) (replicating a [2010 stud](https://www.tandfonline.com/doi/abs/10.3109/09553001003734501)y) found that weak cell phone signals significantly promote the growth of tumors in mice and that combining a toxic chemical exposure with RF more than doubled the tumor response.,
* “[5G wireless telecommunications expansion: Public health and environmental implications](https://doi.org/10.1016/j.envres.2018.01.016),” is a research review published in Environmental Research, which documents the range of adverse effects reported in the published literature from cancer to bacteria growth changes to DNA damage and concludes that “a moratorium on the deployment of 5G is warranted” and “the addition of this added high-frequency 5G radiation to an already complex mix of lower frequencies, will contribute to a negative public health outcome both from both physical and mental health perspectives.”
* A [study published in Electromagnetic Biology and Medicine](https://www.researchgate.net/publication/318916428_Impact_of_radiofrequency_radiation_on_DNA_damage_and_antioxidants_in_peripheral_blood_lymphocytes_of_humans_residing_in_the_vicinity_of_mobile_phone_base_stations), “Impact of radiofrequency radiation on DNA damage and antioxidants in peripheral blood lymphocytes of humans residing in the vicinity of mobile phone base station,” compared people living close and far from a cell antennas and found that people living closer to cellular antennas had higher radiation levels in the homes and several significant changes in their blood predictive of cancer development.”
* A 2019 [study](https://www.ncbi.nlm.nih.gov/pubmed/?term=Mobile+Phone+Base+Station+Tower+Settings+Adjacent+to+School+Buildings%3A+Impact+on+Students%E2%80%99+Cognitive+Health) of students in schools near cell towers found their higher RF exposure was associated with impacts on motor skills, memory and attention ([Meo 2019](https://www.ncbi.nlm.nih.gov/pubmed/?term=Mobile+Phone+Base+Station+Tower+Settings+Adjacent+to+School+Buildings%3A+Impact+on+Students%E2%80%99+Cognitive+Health)). Examples of other effects linked to cell towers in research studies include [neuropsychiatric problems](https://www.ncbi.nlm.nih.gov/pubmed/16962663), [elevated diabetes](https://www.researchgate.net/publication/283726472_Association_of_Exposure_to_Radio-Frequency_Electromagnetic_Field_Radiation_RF-EMFR_Generated_by_Mobile_Phone_Base_Stations_with_Glycated_Hemoglobin_HbA1c_and_Risk_of_Type_2_Diabetes_Mellitus), [headaches](https://www.ncbi.nlm.nih.gov/pubmed/16621850), [sleep problems](https://www.ncbi.nlm.nih.gov/pubmed/12168254) and [genetic damage](https://www.ncbi.nlm.nih.gov/pubmed/25006864). Such research continues to accumulate after the 2010 landmark [review study](https://www.nrcresearchpress.com/doi/pdfplus/10.1139/A10-018) on 56 studies that reported biological effects found at very low intensities, including impacts on reproduction, permeability of the blood-brain barrier, behavior, cellular and metabolic changes, and increases in cancer risk ([Lai and Levitt 2010](https://www.nrcresearchpress.com/doi/pdfplus/10.1139/A10-018)).
* Published research has found impacts from wireless radiation exposure to [reproduction](https://www.ncbi.nlm.nih.gov/pubmed/24927498) and [brain development](https://ecfsapi.fcc.gov/file/7520941390.pdf) in addition to a myriad of other adverse effects.,,, Although renowned institutions, such as the [Cleveland Clinic](https://health.clevelandclinic.org/are-you-unknowingly-lowering-your-sperm-count-when-to-worry/), advise men to keep phones and wireless devices away from their reproductive organs, the public remains largely unaware.

Once the towers are erected they will be upgraded over time with new antennas and soon 5G technology. 5G would use today’s wireless frequencies while adding new, higher frequencies to transmit data at faster speeds. These higher frequency millimeter waves uniquely penetrate the eyes and skin,,20,21,22 and have been shown to accelerate bacterial and viral cell growth. Millimeter waves were originally developed as a military weapon to create the sensation that the skin is burning. Currently accepted standards are not sophisticated enough to measure effects on sweat glands or quantify the risks of cumulative exposure.,Any future applications of these technologies must consider the biological effect of cumulative exposures to these frequencies.

**Radiofrequency radiation exposure is increasing at a rapid pace.**

A [2018 article](https://www.sciencedirect.com/science/article/pii/S2542519618302213?via%3Dihub) published in *The Lancet Planetary Health* points to unprecedented increasing RF exposures, and the abstract concludes, “due to the exponential increase in the use of wireless personal communication devices (eg, mobile or cordless phones and WiFi or Bluetooth-enabled devices) and the infrastructure facilitating them, levels of exposure to radiofrequency electromagnetic radiation around the 1 GHz frequency band, which is mostly used for modern wireless communications, have increased from extremely low natural levels by about 1018 times…”([Bandara and Carpenter 2018](https://www.sciencedirect.com/science/article/pii/S2542519618302213?via%3Dihub)).

Another key finding from [Zothansiama 2017](https://www.researchgate.net/scientific-contributions/2131399242_Zothansiama) was that homes closer to antennas had measurably higher radiation levels—adding to the documentation that antennas increase RF levels. An [Australian study](https://www.ncbi.nlm.nih.gov/pubmed/27759027) also found that children in kindergartens with nearby antenna installations had nearly three-and-a-half times higher RF exposures than children with installations further away (more than 300 meters ([Bhatt 2016](https://www.ncbi.nlm.nih.gov/pubmed/27759027)).

A 2018 multi-country [study](https://www.sciencedirect.com/science/article/pii/S016041201731485X) that measured RF in several countries found that cell phone tower radiation is the dominant contributor to RF exposure in most outdoor areas exposure in urban areas was higher and that exposure has drastically increased. As an example, the measurements the researchers [took](https://www.sciencedirect.com/science/article/pii/S016041201731485X) in Los Angeles, USA was 70 times higher than the US EPA estimate 40 years ago.

**FCC limits are non-protective**

FCC limits are based only on thermal heating and do not account for biological impacts at levels far lower than FCC limits. The Department of Interior wrote a [2014 letter](http://nebula.wsimg.com/e498f8f484d32b310fa2cccec4eb7d28?AccessKeyId=FF4B01FD5B2965093C55&disposition=0&alloworigin=1) on the impact of cell towers on migratory birds documenting several studies that found adverse effects and concludes that “The electromagnetic radiation standards used by the Federal Communications Commission (FCC) continue to be based on thermal heating, a criterion now nearly 30 years out of date and inapplicable today.”

In the United States, RFR radiation regulatory limits were set by the FCC more than two decades ago in 1996. However, the FCC limits are not safety standards. Although the EPA was actively researching this issue and tasked to develop proper safety limits,, the EPA was abruptly defunded in 1996 and the FCC adopted guidelines developed by industry-connected non-independent groups ([ANSI/IEEE C95.1-1992](https://ehtrust.org/wp-content/uploads/2016-ANSIandIEEEStandardsUSExposuresLimitsAHistoryofTheirCreationbyLloydMorganEHTwebsite.pdf), [NCRP’s 1986 Report](https://searchworks.stanford.edu/view/7879340)) Experts from U.S. government agencies (including the EPA and NIOSH) have repeatedly documented issues concerning the inadequacy of these limits but their letters have gone unanswered., The EPA has clarified that the FCC limits do not protect against effects from long-term low-level exposures. In 2008, the National Academy of Sciences released a [Report](https://www.nap.edu/catalog/12036/identification-of-research-needs-relating-to-potential-biological-or-adverse-health-effects-of-wireless-communication-devices) on research needs that included recommending research on the impacts to brain development and exposures to children and pregnant women.

In 2012, the Government Accountability Office issued a [Report](https://www.gao.gov/assets/600/592901.pdf) calling for RFR standards to be updated with current research recommending that the FCC formally reassess the current RF energy exposure limit, including its effects on human health, the costs,  and benefits associated with keeping the current limit, and the opinions of relevant health and safety agencies, and change the limit if determined appropriate. In response to the [2012 GAO Report](https://www.gao.gov/assets/600/592901.pdf), the FCC opened proceedings ([ET Docket No. 13-84 Reassessment of FCC Radiofrequency Exposure Limits](https://www.fcc.gov/ecfs/search/filings?proceedings_name=13-84&sort=date_disseminated,DESC)  and [ET Docket No. 03-137 Proposed Changes in the Commission’s Rules Regarding Human Exposure to Radiofrequency Electromagnetic Fields)](https://www.fcc.gov/ecfs/search/filings?proceedings_name=03-137&sort=date_disseminated,DESC)  to explore whether it should modify its radiofrequency exposure standards. The [FCC also noted](https://www.federalregister.gov/documents/2013/06/04/2013-12713/reassessment-of-exposure-to-radiofrequency-electromagnetic-fields-limits-and-policies), “we specifically seek comment as to whether our current limits are appropriate as they relate to device use by children.” To date, the FCC has failed to act. Over 900 comments have been filed since the FCC opened these dockets these  dockets, but no US health agency has submitted any opinion or scientific documentation to either docket.

Due to the FCC’s inaction, the GAO has [updated](https://www.gao.gov/products/GAO-12-771) the status as “Closed – Not Implemented” with these comments: “despite many years of consideration, FCC still has no specific plans to take any actions that would satisfy our recommendations. Accordingly, we are closing the recommendations as not implemented.”

**Children are more vulnerable.**

Children’s skulls are thinner, their heads are smaller, and the radiation penetrates deeper into their brain. Research has found that a child’s head’s absorption can be over two times greater, and absorption of the skull’s bone marrow can be ten times greater, than adults., The American Academy of Pediatrics, which is the largest organization of U.S. pediatricians, has repeatedly [written](https://ehtrust.org/wp-content/uploads/American-Academy-of-Pediatrics-Letters-.pdf) to the U.S. government documenting children’s vulnerabilities and recommends reducing children’s and pregnant women’s exposure.

The [California Department of Health](https://www.cdph.ca.gov/Programs/OPA/Pages/NR17-086.aspx), the [Connecticut Department of Health](http://www.portal.ct.gov/-/media/Departments-and-Agencies/DPH/dph/environmental_health/eoha/Toxicology_Risk_Assessment/050815CellPhonesFINALpdf.pdf?la=en), many international health [organizations](https://ehtrust.org/science/medical-doctors-consensus-statements-recommendations-cell-phoneswireless/) and medical associations, and more than 20 [governments](https://ehtrust.org/policy/international-policy-actions-on-wireless/) are recommending wireless exposure reduction, especially for children.

Several countries have allowable public exposure limits lower than ICNIRP levels with limits that are even more protective for kindergartens, schools and hospitals. In addition, some governments’ regulatory actions include banning cell phones or removing Wi-Fi and cell towers in or near schools. For example:

* Belgium and France have banned the sale of cell phones designed for young children and made it illegal to market cell phones to children less than 14 years of age.
* France has banned cell phones in elementary and middle schools, and playgrounds.
* The Supreme Court of India upheld the High Court of the State of Rajasthan’s decision to remove all cell towers from the vicinity of schools, hospitals and playgrounds because this radiation is “hazardous” and causes cancer, brain tumour, digestive disorder and tachycardia.
* The Environment Minister of Italy has decreed to reduce as much as possible indoor exposure to both ELF-EMF and RF-EMF.
* Cyprus has banned Wi-Fi from kindergartens and elementary classrooms.
* In Chile, the 2012 [“Antenna Law”](http://www.carey.cl/download/newsalert/Communications%20Law%20(April%202013).pdf) prohibits cell antennas/towers in “sensitive areas” such as “educational institutions, nurseries, kindergartens, hospitals, clinics, nursing homes or other institutions of similar nature.”

Children will have a lifetime of exposure to wireless radiation; in order to protect their healthy future, public health authorities must limit this exposure as much as possible.

Moreover, [recent cell phone radiation tests](https://ehtrust.org/cell-phone-radiation-scandal-french-government-data-indicates-cell-phones-exposeconsumers-radiation-levels-higher-manufacturers-claim/) released by the French government found that nine out of ten cell phones exceed regulatory limits for radiofrequency radiation when tested in body contact positions (simulating a phone in pants pocket, bra or resting on chest). Despite this documentation, U.S. radiation limits have still not been revised. To this date, there has been no public record of an independent systematic review of the research by any U.S. health agency in order to set proper safety standards. The current outdated regulations are inadequate to protect public health.

Since 1997, insurance companies have refused to insure wireless companies and “[electromagnetic field exclusions](https://ehtrust.org/key-issues/electromagnetic-field-insurance-policy-exclusions/)” in insurance policies are an industry standard. EMFs are deemed as “high-risk” in insurance [white papers](https://ehtrust.org/key-issues/reports-white-papers-insurance-industry/), and EMFs are [defined](https://b-h-a.com/blog/the-gl-form-and-pollution-exclusions/) as a “pollutant” by many insurance companies alongside smoke, chemicals, and asbestos. Some companies will only cover liability from EMFs under additional “[Pollution Liability](https://b-h-a.com/blog/the-gl-form-and-pollution-exclusions/)” policy enhancement coverage. Some policies not only exclude damages from EMFs but also exclude paying for the defense of “*any supervision, instruction, recommendation, warning or advice given or which should have been given in connection with bodily injury, property damage, abatement and/or mitigation etc.*”

Wireless companies [warn](https://ehtrust.org/key-issues/corporate-company-investor-warnings-annual-reports-10k-filings-cell-phone-radiation-risks/) their shareholders—in mandated annual [10k filings](https://ehtrust.org/key-issues/corporate-company-investor-warnings-annual-reports-10k-filings-cell-phone-radiation-risks/)—that they may incur financial losses from lawsuits related to EMF radiation emissions of their products. For example:

* AT&T [states,](https://www.att.com/Investor/ATT_Annual/2016/downloads/att_ar2016_completeannualreport.pdf) *“We may incur significant expenses defending such suits or government charges and may be required to pay amounts or otherwise change our operations in ways that could materially adversely affect our operations or financial results.”*
* Crown Castle’s [2016 10-K ANNUAL REPORT](http://services.corporate-ir.net/SEC/Document.Service?id=P3VybD1hSFIwY0RvdkwyRndhUzUwWlc1cmQybDZZWEprTG1OdmJTOWtiM2R1Ykc5aFpDNXdhSEEvWVdOMGFXOXVQVkJFUmlacGNHRm5aVDB4TVRReE5EWTJOeVp6ZFdKemFXUTlOVGM9JnR5cGU9MiZmbj1Dcm93bkNhc3RsZV8xMEtfMjAxNzAyMjIucGRm) states, *“If radio frequency emissions from wireless handsets or equipment on our wireless infrastructure are demonstrated to cause negative health effects, potential future claims could adversely affect our operations, costs or revenues. The potential connection between radio frequency emissions and certain negative health effects, including some forms of cancer, has been the subject of substantial study by the scientific community in recent years. We cannot guarantee that claims relating to radio frequency emissions will not arise in the future or that the results of such studies will not be adverse to us…If a connection between radio frequency emissions and possible negative health effects were established, our operations, costs, or revenues may be materially and adversely affected. We currently do not maintain any significant insurance with respect to these matters.”*

Most wireless companies—from [AT&T](https://www.att.com/Investor/ATT_Annual/2016/downloads/att_ar2016_completeannualreport.pdf) to [Nokia](http://cdn.softbank.jp/en/corp/set/data/irinfo/financials/annual_reports/pdf/2016/softbank_annual_report_2016_001.pdf) to [T Mobile](https://www.snl.com/Cache/c38030540.html) to [Verizon Wireless](http://verizon.api.edgar-online.com/EFX_dll/EdgarPro.dll?FetchFilingConvPDF1?SessionID=Do59qmn_u0wVg_T&ID=11871260)—have issued [similar warnings](https://ehtrust.org/key-issues/corporate-company-investor-warnings-annual-reports-10k-filings-cell-phone-radiation-risks/) to their shareholders.

Will the visiting public to the National Parks also be warned of the risk?

**Scientists Worldwide: Reduce Exposure**

An increasing number of [experts](https://ehtrust.org/small-cells-mini-cell-towers-health-letters-scientists-health-risk-5g/) around the world are calling for reduced exposure—due to the unprecedented threat to public health and the environment—to stop the installation of radiation-emitting equipment placed within meters of homes, playgrounds, and schools.

* In 2015, the [International EMF Scientist Appeal](https://www.emfscientist.org/index.php/emf-scientist-appeal), now signed by over 225 scientists from 41 nations, urging the development of more protective guidelines for EMF (including RF-EMF), encouraging precautionary measures, and calling for education of the public about health risks, particularly risks to children and fetal development, was submitted to the Secretary-General of the United Nations, the Director-General of the World Health Organization, and U.N. Member Nations.
* In June 2017, EMF Scientists submitted [Comments to the U.S. FCC](https://drive.google.com/file/d/0B14R6QNkmaXuZnUzaWRNSjhuMkU/view), asking the FCC to critically consider the potential impact of the 5th generation wireless infrastructure on the health and safety of the U.S. population before proceeding to deploy this infrastructure.
* In September 2017, I joined over 180 experts from 35 countries who sent a [declaration](https://ehtrust.org/scientists-and-doctors-demand-moratorium-on-5g-warning-of-health-effects/) to the European Union calling for a moratorium on 5G until hazards have been fully investigated by independent scientists, citing potential neurological impacts, infertility, and cancer.

The tobacco and asbestos crises demonstrate that failing to act on public health hazards when they arise can lead to irreversible damage later. EHT thus strongly opposes building out 5G infrastructure—which would place thousands of new sources of microwave radiation emissions in close proximity to workers, families, and local wildlife—at least until more testing has been conducted.

**Cell Towers Create Additional Safety Hazards**

Another area of concern with the proposed expansion of the wireless infrastructure is fires. Cell towers are known to catch fire such as the [150-foot tower in Washington](https://www.kitsapdailynews.com/news/osprey-nest-electrical-problem-sparked-poulsbo-cell-tower-fire/) that experienced an electrical malfunction at a lighted beacon on top of the tower which caught an Osprey’s nest on fire. Many birds, particularly raptors, choose to nest on or near cell towers because of the heat they provide, the clear view, and high vantage point that they favor for their nesting sites. There are many more examples of these towers catching fire, such as a [125-foot tower in Maryland](https://www.firehouse.com/home/news/10500668/maryland-cell-tower-destroyed-by-fire). A church in South Africa that housed antennas caught fire this month, and [news reports](https://mybroadband.co.za/news/telecoms/302310-church-burns-down-and-leaves-sa-town-without-cellphone-reception.html) state authorities are investigating if it was a short circuit from the equipment that started the fire.

Towers have also been known to attract [lightning strikes](https://eos.org/research-spotlights/antenna-towers-attract-additional-lightning-strikes). The higher the tower the higher the probability that lightning will strike the tower, presenting another type of fire hazard.

We at the Environmental Health Trust urge you, as stewards of our national parks and along with [your mission](https://www.nps.gov/articles/npshistory-entering-21st-century.htm), “The National Park Service preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations,” to seek out the research and information about the health effects on both humans and the flora and fauna of the parks in order to protect and preserve. Taking all information into consideration you are also following [the National Park Service’s own statement](https://www.nps.gov/articles/npshistory-entering-21st-century.htm), “by caring for the parks and conveying the park ethic, we care for ourselves and act on behalf of the future. The larger purpose of this mission is to build a citizenry that is committed to conserving its heritage and its home on earth.”

Respectfully submitted,

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