

April 21, 2021

Honorable Joseph R. Biden, President  
The White House  
1600 Pennsylvania Avenue N.W.  
Washington, DC 20500

Dear President Biden,

We write to you as scientists deeply committed to protecting public health and the environment and as authors of several hundred publications, including some prepared for the Intergovernmental Panel on Climate Change. We are writing to urge you to take immediate actions to reduce and restrict the rapid and continuing increase in our schools, workplaces, and homes of a harmful environmental pollutant — wireless microwave radiofrequency radiation (RFR).

Children are [more vulnerable](#) to wireless radiation and should not be doing homework on cell phones or with wireless hotspots that [catch fire](#). Wireless networks have numerous environmental impacts meriting concerted regulatory control.

We agree that “broadband internet is the new electricity” that enables Americans to do their jobs, to participate equally in school learning and health care, and to create a fairer playing field by eliminating the digital divide. The United States must bridge the digital divide with a “future proof” broadband infrastructure that is affordable, reliable, high-speed, and sustainable.

This infrastructure should be wired, not wireless. We urge that wherever possible the broadband system envisioned in the American Jobs Plan rely on safer, more secure and efficient, wired connections, especially for schools and other institutions where wired connections will save money and eliminate exposures to wireless radiation, found by the National Toxicology Program to cause clear evidence of cancer.

## **BIOLOGICAL AND ECOLOGICAL IMPACTS OF WIRELESS AND NON-IONIZING RADIATION**

A substantial body of [peer-reviewed scientific reports](#) document multiple serious negative impacts on human health from wireless microwave radiation, including [increased brain](#), [breast](#) and [thyroid](#) cancer risk, [cellular stress](#), [genetic damage](#), harm to the [reproductive system](#), [learning](#) and [memory deficits](#), [behavioral problems](#), [neurological effects](#), [damage to brain development](#), [headaches](#), and various [impacts to wellbeing](#).

This letter takes the liberty of providing a detailed appendix with some of the growing and robust independent scientific literature linking wireless radiofrequency radiation to numerous health effects. The literature makes clear the need for a major change in our approach to wireless technology, especially as millions of families increasingly use video conferences for school and work.

Most notable among the science on RFR is the United States' own years-long [National Toxicology Program](#) (NTP) study into the effects of cellphone radiation exposure. The \$30 million, interagency-supported study originally requested and commissioned by the Food and Drug Administration (FDA) exposed animals in their lifetimes to the same levels of cell phone radiation that humans get today. Using standard protocols for testing, the NTP study showed conclusively that low-intensity, modulated radio signals of the form of GSM and CDMA cause cancer and heart damage in animals as well as DNA damage in multiple organs.

Non-ionizing radiation at lower frequencies also can cause biological harm to humans, studies show. As an example, Kaiser Permanente research on prenatal exposures to magnetic field non-ionizing electromagnetic field (EMF) radiation has found increased [miscarriage](#) as well as higher incidences of [ADHD](#), [obesity](#), and [asthma](#). While several countries have strict limits on residential exposures, the United States has no regulatory limits whatsoever on allowable exposures to magnetic field non-ionizing EMF.

Recent reports from the [Swiss government's](#) EMF expert advisory group, the [National Research Foundation of Korea](#), and [Yale Medicine](#), confirm the view that *legal levels* of wireless radiation can damage the health of children, pregnant women, and the medically vulnerable.

Christopher Portier PhD, a longtime U.S. government scientist now retired, recently submitted a [comprehensive review](#) of the scientific research in a major cell phone/brain cancer lawsuit where he concludes that "the evidence on an association between cellular phone use and the risk of glioma in adults is quite strong."

"In my opinion, RF exposure probably causes gliomas and neuromas and, given the human, animal and experimental evidence, I assert that, to a reasonable degree of scientific certainty, the probability that RF exposure causes gliomas and neuromas is high," he wrote.

The [176-page expert report](#) with 443 references was prepared for the plaintiffs in a major product liability [lawsuit](#), Murray et al. v Motorola, Inc. et al., filed in the Superior Court for the District of Columbia against the telecommunications industry. Dr. Portier was the Director of the United States National Center for Environmental Health at the Centers for Disease Control and Prevention in Atlanta, and the Director of the Agency for Toxic Substances and Disease Registry. He is one of many US governments scientists and [advisors to the World Health Organization](#) highlighting the ever-growing body of scientific evidence showing harm.

## THE ENVIRONMENTAL IMPERATIVE

The unfettered proliferation of new wireless networks including 5G and 4G antenna densification constitutes a major global contributor to greenhouse gases and hazardous e-waste. Rather than advance climate objectives, 5G instead constitutes an unmitigated disaster for our climate because of the vast surge in energy demand that will take place. Further, 5G deployment will increase environmental levels of RFR, which science documents to be harmful not only to human health, but also to wildlife and the environment.

5G requires hundreds of thousands of new so-called “small” cell towers and billions of new wireless devices, which will use massive amounts of energy in their production, operation, and disposal. 5G antennas are referred to as “[hungry, hungry hippos](#)” and “[a battery vampire](#).” [Numerous reports](#) have [documented](#) the exponentially increased use of energy by 5G and 4G densification and the Internet of Things. [Streaming](#) with [wireless](#) results in higher greenhouse gas emissions compared to safer, faster, and more secure corded/wired fiber-optic connections.

While there may be improvements in energy efficiency for new devices individually, these gains are completely lost in the increases in total demand that will take place with the proliferation of games, videos, other streaming services, and the continued generation of highly addictive apps.

Additionally, telecommunications firms contend that 5G network antennas must be sited about every 100 yards, and they have haphazardly started nationwide construction on hundreds of thousands of new “small cell” antennas near our homes and schools.

5G densification to accommodate this wireless infrastructure will inevitably require the removal of countless numbers of trees from urban and rural locales. Not only will this destroy valuable tree canopies, increase greenhouse gases, and damage root systems, but it will cause a dramatic increase in environmental levels of radiofrequency radiation (RFR) known to [damage trees](#). Wireless technology can also impact [insects](#), [bees](#), [plants](#), [animals](#), and [bacteria](#), all of which are vital to the ecosystem, even in the densest urban environment.

## U.S. FEDERAL POLICY ON 5G DISREGARDS HEALTH AND ENVIRONMENTAL IMPACTS

The implication of the NTP study, and a [parallel study](#) carried out by the Ramazzini Institute of Bologna, Italy, along with recent reviews on [oxidative stress](#), reproduction and [genetic effects](#), is that current Federal Communications Commission (FCC) human exposure limits for non-ionizing RFR originating from the wireless infrastructure allow for hazardous levels of exposure. In reality, the push for 5G constitutes an unethical experiment with all of us as unwitting subjects.

The FCC has [proposed new rules](#) for a large range of EMF frequencies (lower than are currently used for wireless networks) without adequate safety testing. As scientific comments in FCC [Docket 19-226](#) document, these lower frequencies cannot be considered safe.

It is not widely appreciated that the FCC already ushered in unprecedented and untested commercial expansion of 5G and 4G cellular technology without serious deliberation on the effects of this new technology on humans and the environment. Its lack of serious, systematic deliberation on the science is demonstrated by its unchecked rejection of the need to comply with the National Environmental Policy Act (NEPA), the Administrative Procedures Act (APA, and the Americans With Disabilities Act (ADA).

Our historic legal appeal, [EHT et al. v. FCC](#), documents numerous violations of these federal laws and demonstrates how the FCC did not provide evidence of having undergone a “hard-look” or systematic assessment of the scientific evidence on the [FCC's own record](#) when [deciding in 2019](#) to keep its outdated 1996 wireless radiation limits.

Under NEPA, all major federal regulations must undergo review for their potential impact on the environment. FCC limits are not designed to protect wildlife or the natural environment, yet the FCC refused to conduct an environmental assessment of the 5G network. Although the records were withheld, FOIA investigations by the Environmental Health Trust have found that the FCC [internally discussed](#) the issue of environmental review related to 5G, yet never moved forward to complete one. Studies attached in our appendix show the folly of this unscientific decision.

Unlike other countries that provide robust resources to their people on how to decrease exposure, United States agencies downplay the issue of health effects and provide minimal information on how families can reduce exposures. The Centers for Disease Control (CDC) [hired an industry consultant](#) to draft numerous website pages on the health effects of non-ionizing radiation. The [EPA](#) scrubbed their website of content on potential health risks of wireless radiation.

Further, the FCC and FDA now state that they rely on a self-appointed, self-monitored, private club, to which no American belongs, termed the International Commission of Non-ionizing Radiation Protection (ICNIRP). This small group of around one dozen scientists is closely allied with industry and does not represent the larger expert scientific community. It repeatedly puts forward [unfounded criticisms](#) of U.S. government research yet remains unchecked by oversight or independent external review. [Numerous investigations](#), [published research](#), and a [2020 report](#) released by European Members of Parliament details the ways in which ICNIRP has serious conflicts of interests and remains under the influence of the telecommunications industry. Yet both the FCC and the FDA substantiate their rejection of the US NTP \$30 million animal study with ICNIRP's criticism despite the fact that several retired [scientists](#) of the National Institutes of Health have documented that ICNIRP's criticisms are erroneous.

As a result of the FCC's omissions, the 5G rollout and 4G densification must be halted until environmental evaluations are completed and federally developed safety limits that protect public health and the environment are created.

## **POLICY RECOMMENDATIONS**

As scientists dedicated to public health, we ask that the broadband infrastructure cited in the American Jobs Plan prioritize a wired telecommunication infrastructure, and that the climate, public health, and environmental impacts of future networks be integrated into any assessment of policy options and proposed regulations promulgated by your administration.

We recommend the following:

1. **A sustainable wired (not wireless) infrastructure: The administration should focus on infrastructure that includes wired networks *up to* and *inside* of buildings and evaluate economic opportunities to ensure environmentally sustainable infrastructure.** In anticipating thousands of miles of new transmission lines to be laid to renew the electrical grid, we stress that much-needed expanded access to broadband need not and should not depend on wireless networks but instead on economical wired fiber-optic cable that goes to and through the premises.
2. **An immediate halt to the 5G rollout and associated 4G densification.** Consistent with concerns expressed by a number of environmental organizations in this nation and expert advice from experts in other nations, we call for a full halt to the more than 1 million new 5G network antennas and associated cell towers — some slated for neighborhoods and areas of pristine wilderness [in our National Parks](#) — and the concomitant destruction of hundreds of thousands of trees and wildlife habitats.
3. **An assessment of the energy consumption and climate impact of 5G and 4G densification.** We urge you to include a full life-cycle assessment of the potential impact of wireless antenna densification on climate policy that takes into account growing evidence of substantially increased greenhouse gas emissions if 5G were to be implemented, as well as emissions and pollution analysis related to the extraction, production, transportation, and disposal of materials in the full life cycle of wireless technologies.
4. **An assessment of the environmental impact of the 5G network.** The U.S. must first do a comprehensive assessment on the environmental impacts of the hundreds of thousands of new 5G/4G wireless facilities which includes impacts to tree canopy, wildlife habitat, and how millimeter waves will impact insects and pollinators and more.
5. **A genuine review of the entire body of scientific research on non-ionizing electromagnetic radiation on human and environmental health.** Independent experts and relevant government authorities must conduct a review of the full body of scientific research so that they may develop biologically based federal safety limits for human and wildlife exposures to radiofrequency and magnetic field non-ionizing electromagnetic

radiation. The review must engage all relevant U.S. health, science, and environmental agencies (such as the Environmental Protection Agency (EPA), National Cancer Institute (NCI), Occupational Safety and Health Administration (OSHA), the National Institutes of Health (NIH) and National Toxicology Program (NTP)) and take into account the ever-growing scientific evidence of immediate and long-term biological impacts as well as the rapidly expanding impacts on climate, wildlife, and our natural world.

6. **The development of science-based safety limits for human and wildlife exposures to RFR and non ionizing EMF.** The allowable exposure limits for RFR were adopted in 1996 and have not changed since then. The EPA should develop safety limits based on the scientific research. The United States must also develop exposure limits on magnetic field EMF and other frequencies in the non-ionizing range used in electricity distribution, wireless power transfer and other applications.
7. **Appointment of FCC commissioners who are absent of ties to the wireless Industry.** We call on you to end [the revolving door](#) through which FCC commissioners come from and return to the telecom industry. The FCC is termed a “Captured Agency” in a Safra Center for Ethics, Harvard Law School report. We ask you to ban all telecom industry executives, lobbyists, and representatives from any advisory or official position in your transition team, cabinet, and administration.
8. **Appointment of an interdisciplinary committee at the National Academies of Sciences (NAS) to review the science underlying 5G and wireless networks, to identify major data gaps and uncertainties, and to set priorities for research on health and safety.** This review must systematically consider the full lifetime costs and benefits of 5G and other telecom technologies now on the drawing board and evaluate immediate and long-term climate impacts. The National Academy of Sciences (NAS) Report “[An Assessment of Illness in U.S. Government Employees and Their Families at Overseas Embassies](#)” commissioned by the U.S. State Department cites “directed, pulsed radiofrequency energy” as “the most plausible mechanism” to explain the mystery illness suffered by U.S. Embassy personnel. The NAS must also develop a major interdisciplinary training program for medical and engineering professionals to better understand the impacts of bioelectromagnetics.
9. **A multimedia national public awareness education campaign so that people know why and how to reduce exposure to wireless and other non-ionizing electromagnetic radiation.** We also ask that your administration develop and validate a nationwide educational campaign for parents, teachers, and the public so they understand why and how to reduce daily exposures to wireless radiofrequency and other non-ionizing radiation from laptops, cell phones, and the numerous digital devices in our lives today. This includes an update to the public information posted on the websites of the CDC, EPA, National Cancer Institute, and FCC to include straightforward, unambiguous recommendations to reduce exposure to non-ionizing radiation as well as refer to the full results of the National Toxicology Program study and other independent research on wireless and non-ionizing radiation.

10. **Promotion of policies that reduce wireless exposures in schools.** Strategies are urgently needed to eliminate sources of radiofrequency radiation in the indoor environment, especially in schools and public buildings. Wi-Fi infrastructure should be replaced with wired networks in the classroom where children spent most of their waking hours.
11. **Labor policy that addresses growing occupational exposures.** An investigation by the National Department of Labor and Occupational Safety and Health Administration into current and projected occupational exposures and practical measures to reduce occupational exposures is urgently needed addressing the range of workplace exposure from hospitals, to schools, to delivery drivers, to electricians working on rooftops, to cell tower climbers.
12. **The launch of a task force convened by the Surgeon General on how to minimize health effects of technology on children.** The harmful physical, social, and emotional effects of screens is well documented yet our children's use of screens is ever increasing.

## **INTERNATIONAL ACTIONS ON WIRELESS INFRASTRUCTURE**

While the U.S. should be leading efforts to create and validate safer technology, especially for our schools and workforce, we have fallen far behind other countries in this regard. It is time for change.

Several high-tech nations have surpassed the United States in recognizing not only environmental but also human impacts from wireless radiation exposure. France, Israel, Korea, French Polynesia, and Switzerland, among others, have policies and educational programs to reduce public exposure to wireless and non-ionizing radiation. Numerous countries have far more stringent cell tower radiation exposure limits compared to the United States.

Deeply concerned about growing evidence linking brain cancer to cell phone use, the Korean National Cancer Institute has issued clear recommendations to reduce cell phone radiation to children. Other nations issue notices at points of sale, ban or restrict the use of Wi-Fi and cell phones in schools, and ban the advertising and sale of cell phones to young children.

In economic terms, the American Jobs Plan notes that the United States "has some of the highest broadband prices among OECD countries." Current proposals for wireless 5G are far more costly and wasteful than wired communications. Wired cables create a safer, more secure, faster, and longer-lasting connection. In sum, they are more cost-effective.

Our experts stand ready to provide more detailed information to you on this important issue, including elaborating on materials in the attached appendix and assistance with evaluating the science and impacts on humans, climate, animals, and wilderness.

Yours sincerely,



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cc: The Honorable Xavier Becerra, Secretary of Health and Human Services  
The Honorable John Kerry, Special Presidential Envoy for Climate  
Mr. Shawn Benge, Acting Director of the U.S. National Park Service  
The Honorable Nancy Pelosi, CA-12  
The Honorable Conor Lamb, PA-17  
The Honorable Susie Lee, NV-03  
The Honorable Chrissy Houlahan, PA-06  
The Honorable Anna Eshoo, CA-18  
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The Honorable Benjamin Cardin, MD

## APPENDIX

### Reports and White Papers: 5G, Energy Consumption, and Climate

Data Center Forum White Paper, (2020) [Environmentally Sustainable 5G Deployment](https://www.datacenter-forum.com/datacenter-forum/5g-will-prompt-energy-consumption-to-grow-by-staggering-160-in-10-years)  
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## Letter from the EPA to Environmental Health Trust

----- Forwarded message -----

From: **Veal, Lee**<Veal.Lee@epa.gov>

Date: Wed, Jul 8, 2020 at 11:32 AM

Subject: RE: Letter with specific Questions Related to the FDA review and to the EPA, CDC, NIOSH and FDA Jurisdiction on EMFs

To: Theodora Scarato <Theodora.Scarato@ehtrust.org>

Dear Director Scarato;

Thank you for sending us your questions and references regarding radiofrequency (RF) radiation. Up through the mid-1990s, EPA did study non-ionizing radiation. The Telecommunications Act of 1996 directs the Federal Communications Commission (FCC) to establish rules regarding RF exposure, while the U.S. Food and Drug Administration (FDA) sets standards for electronic devices that emit non-ionizing or ionizing radiation. EPA does not have a funded mandate for radiofrequency matters, nor do we have a dedicated subject matter expert in radiofrequency exposure. The EPA defers to other agencies possessing a defined role regarding RF. Although your questions are outside our current area of responsibilities, we have provided a response to each one as you requested.

1. *What is your response to these scientists' statements regarding the FDA report and the call to retract it?*

EPA Response: The EPA does not have a funded mandate for radiofrequency matters, has not conducted a review of the FDA report you cited or the scientists' statements, and therefore has no response to it.

2. *To the FDA- What consultants were hired for the FDA review and report on cell phone radiation?*

EPA Response: This is not an EPA matter. Please refer this question to the FDA.

3. *What U.S. agency has reviewed the research on cell phone radiation and brain damage? I ask this because the FDA only has looked at selected studies on cancer. If your agency has not, please simply state you have not.*

EPA Response: EPA's last review was in the 1984 document [Biological Effects of Radiofrequency Radiation \(EPA 600/8-83-026F\)](#). The EPA does not currently have a funded mandate for radiofrequency matters.

4. *What U.S. agency has reviewed the research on damage to memory by cell phone radiation? If so, when and send a link to the review.*

EPA Response: EPA's last review was in the 1984 document [Biological Effects of Radiofrequency Radiation \(EPA 600/8-83-026F\)](#). The EPA does not currently have a funded mandate for radiofrequency matters.

5. *What U.S. agency has reviewed the research on damage to trees from cell phone radiation? If so, when was it issued and send a link to the review. [Note this study showing damage from long term exposure to cell antennas.](#)*

EPA Response: The EPA does not have a funded mandate for radiofrequency matters, and we are not aware of any EPA reviews that have been conducted on this topic. We do not know if any other U.S. agencies have reviewed it.

6. *What U.S. agency has reviewed the research on impacts to birds and bees? If so, when and send a link to the review. I will note the latest research showing [possible impacts to bees](#) from higher frequencies to be used in 5G.*

EPA Response: The EPA does not have a funded mandate for radiofrequency matters, and we are not aware of any EPA reviews that have been conducted on this topic. We do not know if any other US agencies have reviewed it.