

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of )  
 )  
Implementing the Infrastructure Investment ) GN Docket No. 22-69  
and Jobs Act: Prevention and Elimination of )  
Digital Discrimination )

**COMMENTS OF ADVOCATES FOR THE EMS DISABLED  
IN RESPONSE TO NOTICE OF INQUIRY**

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Technology; Safe Tech International, Safe Tech 4 Santa Rosa; Virginians for Safe Technology;

Toxics Information Project; Ms. Anne Wilder, Priest River, Idaho; Ms. Donna Romo; Mark Wahl, Director, Citizen League Encouraging Awareness of Radiation of Whidbey Island, WA; Manhattan Neighbors for Safer Telecommunication; ElectromagneticHealth.org; Lendri Purcell, Founder, Families Advocating for Chemical and Toxics Safety; Ms. Linda Dance; Lex Kisteneff, CEO & Founder, The South Carolina Coalition for Wireless Safety Standards s; mocoSafeG.org in Montgomery County, MD; and Last Tree Laws (hereafter “Advocates for the EMS Disabled”) submit these comments in response to the Notice of Inquiry<sup>1</sup> in the above-captioned proceeding.

### **Introduction and Summary**

Advocates for the EMS Disabled applaud the Commission’s initial effort to “ensure equal access to high-quality, affordable broadband internet access service.” We also fully support the emphasis on “harms experienced by historically excluded and marginalized communities” and the desire for “meaningful policy reforms and systems improvements, as well as a framework for collaborative action to extend digital opportunity to everyone.” NOI ¶1.

The Infrastructure Investment and Jobs Act, Pub. L. No. 117-58, 135 Stat. 429 (2021) (“Infrastructure Act”)<sup>2</sup> seeks to “prevent and eliminate digital discrimination” “based on income level, race, ethnicity, color, religion, or national origin.” 47 U.S.C. §1754(b)(1). It demands “equal access” to “broadband services,” e.g., “the equal opportunity to subscribe to an offered service that provides comparable speeds, capacities, latency, and other quality of service metrics in a given area, for comparable terms and conditions.” §1754(a)(1)-(3). As noted in NOI §6 the Infrastructure Act supplemented the Commission’s pre-existing authority to ensure nondiscriminatory universal service for common carrier service and extended many of the same

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<sup>1</sup> Notice of Inquiry, *Implementing the Infrastructure Investment and Jobs Act: Prevention and Elimination of Digital Discrimination*, FCC 22-21, GN Docket No. 22-69 (Mar. 2022) (“FCC DEI NOP”).

<sup>2</sup> Section 60506 of the Infrastructure Act is codified at 47 U.S.C. §1754, *Digital Discrimination*.

principles to broadband internet access service, which is part of “advanced telecommunications capability” but currently classified as a non-common carrier information service under the Commission’s current rules.

Advocates for the EMS Disabled also support the Commission’s enunciated goals to advance “equity in the provision of and access to digital communication services and products for all people of the United States, without discrimination on the basis of race, color, religion, national origin, sex, or disability.” NOI ¶7 (emphasis added). Although §1754(b)(1) does not expressly include the disabled community within its coverage, the general “equal access” to “all people” requirements in §1754(a)(2) and (3) implicitly do. Therefore, the Commission should conclude that the “listed characteristics in section 60506(b)(1)” are ***not*** “exclusive (NOI ¶24) and disability status is a protected “characteristic” for purposes of the Infrastructure Act. This interpretation would be fully consistent with existing Commission authority, [Executive Order 13985 \(Jan. 20, 2021\)](#) and the Commission’s [Equity Action Plan](#) responding to Executive Order 13985, which expressly recognizes that “persons with disabilities” “disproportionately lack access to broadband internet service.”

Even if the Infrastructure Act’s listed “characteristics” are fairly viewed as exclusive, the Commission has other general and specific authority to ensure the disabled do not suffer digital discrimination and have equal access to broadband:

- Section 152(18) incorporates the Americans with Disabilities Act definition (42 U.S.C. §12102).
- Section 225 contains special authority for the speech and hearing impaired.
- Section 255 requires that telecommunications equipment, customer premises equipment and telecommunications services be “accessible to and usable by individuals with disabilities” or at least be “compatible with peripheral devices or specialized customer premises equipment commonly used by individuals with disabilities.”

- Section 256 allows the Commission to participate in standards setting activities that “promote access to” “network capabilities and services by individuals with disabilities.”
- Section 1302(a) encourages “deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans.”
- The FCC is subject to Rehabilitation Act Section 504, 29 U.S.C. §794, and this proceeding along with any rules or policy determinations will be made as part of a “program or activity” as defined in §1.803 of the Commission’s rules. If the rules or policy determinations impact federal assistance the recipients will also be covered by Section 504’s nondiscrimination and access requirements relating to the disabled.
- There are many other codified and non-codified provisions addressing disabled access, universal service and nondiscrimination scattered throughout the Communications Act including, of course, the general and overarching purposes and policies stated in 47 U.S.C. §151.

These comments will make two principal points, one general and the other specific.

First, the Commission must continue to recognize that wireless-based services do not now and likely never will “provide[] comparable speeds, capacities, latency, and other quality of service metrics in a given area, for comparable terms and conditions” (§1754(a)(2)) in comparison to fiber to the premises. Wireless may constitute “advanced telecommunications capability” but it is still a *complement to*, not an adequate substitute for fiber-fed service. A wireless based user will not receive the same speed, capacity, latency or quality of service and the terms and conditions are not comparable to those for wired (fiber) based access. This is especially so for mobile services, but even fixed wireless solutions are inferior to direct fiber-fed service to the premises. The Commission should always prioritize “to the premise” fiber solutions and rely on wireless only when wired is technically or economically infeasible or the main purpose is mobility.

Second, the disability community is diverse. There are many kinds of disabilities due to a host of causes and each kind gives rise to different needs. There is, however, a much-ignored but large and growing part of the disability community that has been specially harmed and suffers

unique digital discrimination: those who cannot be around Radio Frequency Radiation (RF) because it makes them sick or sicker. Some estimates indicate that up to *thirty percent* of the population – almost 40 million people – suffer at least mild symptoms after exposure to RF.<sup>3</sup> Five percent (5%) – around 17 million – suffer moderate symptoms. One and a half percent (1.5%), or almost 5 million people suffer “severe symptoms” and 0.65% (2.16 million) are so disabled they cannot work at all. Those with “severe symptoms” have “physical or mental impairment[s] that substantially limit[] one or more major life activities.” 42 U.S.C. §12102(1)(A). They are the “EMS Disabled” community on behalf of whom these comments are filed. Wireless exposure is the direct cause of or a major contributing factor to the impairment. This technology is making millions of Americans sick, and it is past time that this pan-epidemic<sup>4</sup> be recognized and addressed.

Forcing exposure – even as part of a genuine and kind-hearted effort to afford broadband access – is itself a form of discrimination as a matter of law. More important it is fundamentally inequitable because it leads to great harm. Those with severe symptoms are functionally excluded from public participation since almost all public spaces are flooded with RF – a toxin to them. Those with wireless facilities nearby cannot even take refuge in their own homes; they are driven out and consigned to a more miserable and sometimes hostile and threatening environment.

If the Commission is sincere about achieving “diversity, equity and inclusion” it must recognize this specific problem and take the kind of special measures to address it that are within its regulatory remit. There must be an allowance for RF-free “safe zones” in public spaces and

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<sup>3</sup> The Prevalence of People with Restricted Access to Work in Manmade Electromagnetic Environments, <https://mdsafetech.files.wordpress.com/2019/10/2018-prevalence-of-electromagnetic-sensitivity.pdf>.

<sup>4</sup> “Scientists 5G appeal,” available at <http://www.5gappeal.eu/the-5g-appeal/>.

buildings to ensure inclusion in public life. The Commission can and should establish such zones, or at least allow local and state authorities to do so without threat or fear of litigation on preemption grounds. The attached paper by Susan Foster and Odette J. Wilkins, “Eliminating Digital Discrimination for the EMS Disabled” provides even more suggestions.

Those who cannot be around RF must have the ability, as a matter of right, to obtain wired (fiber-based) broadband; otherwise they will functionally be denied access to any broadband at all. The RF-sensitive community in general and especially the EMS disabled community in particular must be allowed equal access to broadband in a form that does not threaten or worsen their health and well-being.

## **I. WIRED (FIBER-BASED) BROADBAND SHOULD BE THE PREFERRED MODE OF BROADBAND ACCESS DELIVERY**

The Commission must continue to recognize that wireless-based services do not now and likely will never “provide[] comparable speeds, capacities, latency, and other quality of service metrics in a given area, for comparable terms and conditions” (§1754(a)(2)) in comparison to “fiber to the premises” (“FTTP,” also known as “fiber to the home” or “FTTH”) Wireless may constitute “advanced telecommunications capability”<sup>5</sup> but it is still a *complement to*, not an adequate substitute for fixed service<sup>6</sup> and especially FTTH. A wireless based user will not receive the same speed, capacity, latency or quality of service and the terms and conditions are not comparable to those for wired (fiber) based access. This is especially so for mobile services,

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<sup>5</sup> 47 U.S.C. § 1302(d)(1).

<sup>6</sup> See, *In re Inquiry Concerning Deployment of ATC to All Americans*, FCC 20-50, ¶¶10-12, 35 FCC Rcd 8986, 8991 (Apr. 2020) (“*Fourteenth Broadband Competition Report*”) (“...fixed broadband generally delivers faster speeds, permits higher consumption at a lower price, and has far higher data caps,... While users may substitute between mobile and fixed broadband when accessing certain services and applications, the record indicates that they are not yet functional substitutes for all uses and customer groups. Based on the record before us, we again find that fixed broadband and mobile wireless broadband services are not functional substitutes in all cases.”) (notes omitted).

but even fixed wireless solutions are inferior to direct fiber-fed service to the premises. The Commission should always prioritize “to the premise” fiber solutions and rely on wireless only when wired is technically or economically infeasible or the main purpose is mobility.

1. Fiber to the premise offers higher speeds, better reliability, is more secure and costs less.

FTTP is far superior to all other network architectures, including “fiber to the node” with the last link serviced through copper, coaxial or a wireless link. FTTP offers fully symmetrical multi-gigabit service, less opportunity for congestion because of backhaul limits, better reliability in the face of bad weather, no chance of signal obstruction by vegetation or buildings and lower aesthetic impacts that contribute to visual blight. It is more secure and presents lower risks from electrical fires. FTTP has lower energy needs in relation to wireless, so it has less environmental impact, as explained below. The fiber itself has almost infinite capacity;<sup>7</sup> it is limited only by the capabilities of the equipment at each end. Fiber is futureproof.<sup>8</sup>

Although FTTP does require a physical, tangible link all the way to the premise and often involves higher front-end capital costs and longer construction time, FTTP is far better over the long run. For example, the Total Cost of Ownership (TCO) is far less than the cost of Fixed Wireless Access over the long run. Operations, maintenance and replacement/upgrade costs are lower. The facilities themselves last for a very long time. Some periodic end-link equipment

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<sup>7</sup> Researchers in the Netherlands were able to transmit 255 terabits per second down a single strand in 2014. [255 Terabits/s: Researchers demonstrate record data transmission over new type of fiber](#), Eindhoven University of Technology (Oct. 27, 2014). A single fiber could, in theory, carry all the world’s traffic. [255Tbps: World's fastest network could carry all of the internet's traffic on a single fiber](#), Telepresence Options (Oct. 29, 2014).

<sup>8</sup> Former FCC Chairman Tom Wheeler Testimony to Congress, [https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/Witness%20Testimony\\_Wheeler\\_FC\\_2021.03.22.pdf](https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/Witness%20Testimony_Wheeler_FC_2021.03.22.pdf).

replacement may be required but the cost is relatively low in comparison to the costs associated with required persistent wireless node upgrades.<sup>9</sup> If one looks at long-run “cost per bit” FTTH is almost always the clear winner.

Dr. Timothy Schoechle, PhD, communications technology expert at the National Institute for Science, Law & Public Policy observes that, “[f]iber is unmatched in its speed, performance, reliability, etc. ... Wireless is not a substitute for fiber.”<sup>10</sup> Fiber is more affordable, scalable from symmetrical (upload and download) speeds of 100 Mbps to 1Gbps to 10Gbps, has a longer life span of 25-50 years and is safer and more cybersecure, has lower operational expenses,<sup>11</sup> and is available at more affordable prices. By contrast, wireless typically requires equipment upgrades, constant maintenance and re-investments about every 5 years. An example of fiber deployment, consumers in Hudson County, TN have multiple service options, which include speeds of up to 1000 Mbps (1 Gbps). Pricing and capacity are scalable and provide for 300 Mbps at \$57.99/month and 1 Gbps at \$67.99, in each instance with symmetrical speeds.<sup>12</sup> Wireless technology is not able to effectively compete with similar high-speed Internet, with the FCC only

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<sup>9</sup> A 2020 assessment of the cost to serve a King County, Washington community using FTTP and Fixed Wireless concluded that: “Overall, a fiber investment would have higher capital costs than wireless but much lower operating costs—and would be a better investment over time. Based on engineering and cost-estimation of both a wired (fiber-to-the-premises) and a fixed wireless solution for unserved King County, we conclude that overall, FTTP represents a better broadband solution than fixed wireless for most unserved areas of King County. While FTTP has a higher initial capital cost per passing than a fixed wireless solution, the total cost of operations of FTTP over a 10-year period would be approximately half that of fixed wireless in the same unserved areas—primarily because of the need to replace wireless equipment at relatively short intervals and the cost of leasing space on commercial towers.” Broadband Access Study, p. 21, King County, Washington (Dec. 2019), available at <https://kingcounty.gov/~media/depts/it/services/cable/202002-Broadband-Access-Study.ashx?la=en>.

<sup>10</sup> *Reinventing Wires*, Timothy Schoechle, PhD, National Institute for Science, Law and Public Policy, <https://electromagnetichealth.org/wp-content/uploads/2018/02/ReInventing-Wires-1-25-18.pdf>.

<sup>11</sup> <https://optics.fiberbroadband.org/Full-Article/reduce-network-operating-expenses-choose-ftth>.

<sup>12</sup> <https://bestneighborhood.org/tv-and-internet-hamilton-county-tn/>.



requiring 25 Mbps download / 3 Mbps upload speeds.<sup>13, 14</sup> The Fiber Broadband Association has shown that consumers prefer the symmetrical speeds that fiber provides.<sup>15</sup> As the largest fiber optics trade association in the U.S. states, “If it isn’t fiber, it isn’t broadband.”<sup>16</sup>

Most important, the retail price for FTTP is less expensive on a month-to-month basis than most of the current alternatives, especially mobile broadband. This is particularly so if one considers price using consumption (GB uploaded/downloaded over entire billing period) or using instantaneous demand (MB/GB capacity) as the metric.

FTTP provides the best capacity for remote learning for children and students, and more reliable access to medical and other services for the elderly and disabled during emergencies or severe weather when wireless service is more likely to be interrupted. FTTP would also prevent the exclusion of those disabled or suffering from wireless RFR who cannot be near wireless infrastructure or wireless Internet. These residents should have equal access to broadband – a necessary service – in a manner that does not injure them and that does not otherwise put them in harm’s way. After all, people cannot adopt a technology that is injuring them.

2. Mobile service is technically inferior, has more use limitations, has worse environmental and aesthetic impacts and costs more at retail.

Mobile broadband is technically inferior to FTTH. It may fit the definition of “advanced telecommunications capability in §706,<sup>17</sup> but it does not afford “comparable speeds, capacities, latency, and other quality of service metrics in a given area, for comparable terms and

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<sup>13</sup> <https://www.allconnect.com/blog/internet-speed-classifications-what-is-fast-internet>.

<sup>14</sup> <https://www.fcc.gov/reports-research/reports/broadband-progress-reports/2018-broadband-deployment-report>.

<sup>15</sup> [https://www.broadbandworldnews.com/document.asp?doc\\_id=773546](https://www.broadbandworldnews.com/document.asp?doc_id=773546).

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<https://s3.amazonaws.com/files.fiberbroadband.org/download/3555.4237?AWSAccessKeyId=AKIAIZGD7FMLIYLBZNI&Expires=1650065068&Signature=CfFGHmOkZaAovAfuGmXXs2hDpKo%3D>.

<sup>17</sup> 47 U.S.C. § 1302(d)(1).

conditions”<sup>18</sup> when compared to FTTH-based services. Mobile broadband has lower speed, less capacity, often higher latency and lower quality of service, and the terms are far more onerous, especially for data.

Mobile broadband service typically has data caps and other use restrictions that make it less attractive as the primary means to fully engage in and use all the features, functions and services that can be accessed through advanced communications capability.<sup>19</sup> Those with limited means need equal access to these full capabilities, and mobile broadband simply does not suffice as the primary source, especially given pricing differences that make FTTH far less expensive on a capacity and per-bit basis and more amenable to sharing between multiple end user devices.

Environmental justice is a major part of diversity, equity and inclusion. “Climate change is an environmental justice issue because certain groups of people in the United States are disproportionately affected by climate change and are less able than others to adapt to or recover from climate change impacts.”<sup>20</sup> Although the *NOI* does not mention environmental justice, the environmental impact of various communications architectures on the “characteristics” covered by the Infrastructure Act must be considered in this proceeding.

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<sup>18</sup> 47 U.S.C. §1754(a)(2).

<sup>19</sup> *Fourteenth Broadband Competition Report*, ¶11 and nn. 41, 42, citing ADTRAN Comments at 7; Common Cause et al. Comments at 3, 21, 25-26; INCOMPAS Comments at 11-12; NTCA Comments at 2-3; Open Technology Institute & Access Now Comments at 12-13; CWA Reply at 4; Open Technology Institute & Access Now Reply at 10, 12-13. 42 ADTRAN Comments at 7; Broadband Connects America Comments at 10; National Rural Electric Cooperative Association (NRECA) Comments at 5-6; CWA Reply at 4. See also, *In the Matter of Communications Marketplace Report*, FCC 20-188, ¶¶137-139, 36 FCC Rcd 2945, 3043-3044 & associated notes (Dec. 2020) (“*2020 Communications Marketplace Report*”).

<sup>20</sup> United States Environmental Protection Agency, [Climate Change, Health, and Environmental Justice](https://www.cmu.edu/steinbrenner/EPA%20Factsheets/ej-health-climate-change.pdf) (May, 2016), copy available at <https://www.cmu.edu/steinbrenner/EPA%20Factsheets/ej-health-climate-change.pdf>.

Mobile broadband requires far more energy than does FTTH.<sup>21</sup> The transition to 5G, whether 5G NR (non-standalone) or 5G Standalone NR, will exacerbate this situation until newer and far more efficient equipment can be designed and deployed and 5G networks can fully implement use of their emerging “sleep mode” capability.<sup>22</sup> But even with “sleep mode” the energy consumption profile will still be much higher than that associated with FTTH. Environmental Heath Trust provides an extensive summary of this and much more evidence on the topic, with citation to recent sources, on its website.<sup>23</sup> All this energy consumption will translate into far more greenhouse gas output, thereby contributing to existing climate issues.

Finally, FTTH does not contribute to visual blight or present significant aesthetics concerns. The last mile facilities can be entirely underground or lashed to existing utility infrastructure without much aesthetics ado. One of the most contentious aspects of local permitting for fixed and mobile broadband facilities, on the other hand, is the visual and other aesthetic problems. Simply put, they are ugly and most “concealment” efforts are shockingly

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<sup>21</sup> A 2020 study by the German by the Federal Environment Ministry and the German Environment Agency concluded that “Fiber optic is the most climate-friendly transmission technology” and “Fibre optic video transmission is nearly 50 times more efficient than UMTS.” Joint release by the Federal Environment Ministry and the German Environment Agency, Video streaming: data transmission technology crucial for climate footprint Fibre optic video transmission is nearly 50 times more efficient than UMTS, (Oct. 9, 2020), available at, <https://www.umweltbundesamt.de/en/press/pressinformation/video-streaming-data-transmission-technology>.

<sup>22</sup> The 5G Dilemma: More Base Stations, More Antennas—Less Energy? 5G networks will likely consume more energy than 4G, but one expert says the problem may not be as bad as it seems, Dexter Johnson, IEEE Spectrum (Oct. 3, 2018), available at <https://spectrum.ieee.org/will-increased-energy-consumption-be-the-achilles-heel-of-5g-networks>. For “sleep mode” background see Ericsson, A technical look at 5G energy consumption and performance, Frenger and Tano (Sept. 19, 2019), available at <https://www.ericsson.com/en/blog/2019/9/energy-consumption-5g-nr>.

<sup>23</sup> <https://ehtrust.org/science/reports-on-power-consumption-and-increasing-energy-use-of-wireless-systems-and-digital-ecosystem/>.

ineffective no matter the approach. People just do not want these things near their homes or in scenic areas, and for good reason.

3. Fixed wireless service is technically inferior and costs more from a consumption or demand perspective.

Fixed wireless service is closer to FTTH in terms of performance but still not the same. It too does not afford “comparable speeds, capacities, latency, and other quality of service metrics in a given area, for comparable terms and conditions”<sup>24</sup> when compared to FTTH-based services. Fixed wireless also presents many of the same environmental and aesthetic concerns as mobile, since similar equipment is used. FTTH is the clear preferred solution.

The Commission should always prioritize “fiber to the premise” solutions and rely on mobile or fixed wireless only when fully wired is technically or economically infeasible or the main purpose is mobility.

## **II. THE COMMISSION MUST FINALLY RECOGNIZE THE EXISTENCE OF AND NEED FOR SPECIAL MEASURES TO ADDRESS THE EMS DISABLED COMMUNITY**

The disability community is diverse – there are many kinds of disabilities due to a host of causes. There is, however, a presently invisible and ignored but large and growing part of the disability community that has been specially harmed and suffers unique digital discrimination: those who cannot be around RF because it makes them sick or sicker. Wireless exposure is the direct cause of or a major contributing factor to the very “physical or mental impairment that substantially limits one or more major life activities of” these individuals. 42 U.S.C. §12102(1)(A). Forcing exposure – even as part of a genuine and kind-hearted effort to afford broadband access – is itself a form of discrimination as a matter of law. More important it is fundamentally inequitable because it leads to great harm. Those with this condition are

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<sup>24</sup> 47 U.S.C. §1754(a)(2).

functionally excluded from public participation since almost all public spaces are flooded with RF – a toxin to them. When wireless facilities are nearby they cannot even take refuge in their own homes; they are driven out and consigned to a more miserable and sometimes hostile and threatening environment.

The paper attached to this filing goes into greater detail and provides four stories about EMS disabled individuals. There are millions more just like them – and the Commission itself is a major reason they are suffering today. RF sensitivity is ***not*** idiopathic. The biological evidence is clear, the science is clear, the medical community is closing ranks on this issue, and the FCC must now either get in front of the problem or get out of the way and let others with more health expertise and compassion begin instituting solutions.

If the Commission is sincere about achieving “diversity, equity and inclusion” it ***must*** finally recognize this specific problem, accept the blame for the FCC’s part in it and take immediate special measures to remediate the harms. There must be an allowance for RF-free “safe zones” in public spaces and buildings to ensure inclusion in public life. Those who cannot be around RF must have the ability, as a matter of right, to obtain wired (fiber-based) broadband as a matter of right; otherwise they will functionally be denied access to any broadband at all. Those who are RF-sensitive and especially those with EMS disabilities – like all other excluded and marginalized communities – must be allowed equal access to broadband in a form that does not threaten or worsen their health and well-being.

## **CONCLUSION**

The Commission should always prioritize “fiber to the premise” solutions and rely on mobile or fixed wireless only when fully wired is technically or economically infeasible or the main purpose is mobility. Those who are RF-sensitive and especially those with EMS disabilities

must be allowed equal access to broadband in a form that does not threaten or worsen their health and well-being. They should be able to obtain FTTH as a matter of right. There must be an allowance for RF-free “safe zones” in public spaces and buildings to ensure inclusion in public life. Those who cannot be around RF must have the ability, as a matter of right, to obtain wired (fiber-based) broadband.

Respectfully Submitted,

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Counsel for Children’s Health Defense.

The following groups and individuals have granted permission to counsel to submit these comments on their behalf under the name of “Advocates for the EMS Disabled”:

Susan Foster, Medical Writer, Fire & Utility Consultant; Odette J. Wilkens, President & General Counsel, Wired Broadband, Inc.; Frank Clegg, (formerly, President of Microsoft Canada), Canadians for Safe Technology; Arizonans for Safe Technology; 5G Free California; Desiree Jaworski, Executive Director, Center for Safer Wireless; Kent Chamberlin, PhD, Former member of the NH Commission to Study The Environmental and Health Effects of Evolving 5G Technology; Californians for Safe Technology; Coloradans for Safe Technology; Larry Ortega, Community Union, Inc.; Paska Nayden, Connecticut for Responsible Technology; Cynthia Franklin, Director, Consumers for Safe Cell Phones; Ms. Antonella DiSaverio; Ms. Eva Bortnick; Families for Safe Technology.org; Howard Goodman, Esq.; Safe Technology Minnesota; Ms. Karol Kuehn; Keep Cell Towers Away, Elk Grove, CA; 5G Free Rhode Island; The Leto Foundation; Maine Coalition to Stop Smart Meters; Mrs. Marie Molnar; Mr. Andrew Molnar; Napa Neighborhood For Safe Technology; MA for Safe Technology; Mrs. Pamela Wallace, Director, Safe Tech Forward Michigan; New Hampshire for Safe Technology; New Yorkers 4 Wired Tech; Oregon for Safe Technology; Eugene J. Bazan, PhD, Secretary, PA Smart Meter Work Group; Pennsylvanians for Safe Technology; Stephen R Dahl, Director, Rhode Islanders for Safe Technology; Safe Tech International, Safe Tech 4 Santa Rosa; Virginians for Safe Technology; Toxics Information Project; Ms. Anne Wilder, Priest River, Idaho; Ms. Donna Romo; Mark Wahl, Director, Citizen League Encouraging Awareness of Radiation of Whidbey Island, WA; Manhattan Neighbors for Safer Telecommunication; ElectromagneticHealth.org; Lendri Purcell, Founder, Families Advocating for Chemical and Toxics Safety; Ms. Linda Dance; Lex Kisteneff, CEO & Founder, The South Carolina Coalition for Wireless Safety Standards; mocoSafeG.org in Montgomery County, MD; and Last Tree Laws

ATTACHMENT TO COMMENTS

Eliminating Digital Discrimination For the EMS Disabled (Susan Foster and Odette J. Wilkins)

## Eliminating Digital Discrimination For the EMS Disabled

According to Amnesty International “discrimination occurs when a person is unable to enjoy his or her human rights or other legal rights on an equal basis with others because of an unjustified distinction made in policy, law or treatment.” “Indirect discrimination is when a law, policy, or practice is presented in neutral terms (that is, no explicit distinctions are made) but it disproportionately disadvantages a specific group or groups.” “Direct discrimination is when an explicit distinction is made between groups of people that results in individuals from some groups being less able than others to exercise their rights.”<sup>1</sup>

“Digital discrimination” usually refers to bias built into algorithmic systems, such as in Internet search engines such as Google or Yahoo, “which gives rise to various forms of ‘digital discrimination.’”<sup>2</sup> The Federal Communications Commission’s Notice of Inquiry<sup>3</sup> uses the phrase in a different sense: it focuses on whether there is systemic discrimination in access to the “high-quality, affordable broadband” that allows people to use and enjoy the Internet. *FCC DEI NOI* ¶¶1, 2. This paper demonstrates that those who are disabled<sup>4</sup> by injuries caused by wireless radiation suffer from *both* algorithmic and access-based digital discrimination, sometimes directly and sometimes indirectly. The Commission has significantly contributed to this discrimination, at times knowingly so.

There is a large and diverse community of individuals who significantly suffer from wireless radiation exposure from wireless base stations, cell phones and other telecommunications infrastructure and devices. Many have symptoms that give rise to “impairment[s] that substantially limit[] one or more major life activities” 42 U.S.C. §12102(1)(A). Although there are various names for the condition, a common term is electro-magnetic sensitivity (EMS). Those with severe symptoms are “EMS disabled.”

This White Paper addresses:

- The impact of digital discrimination on the EMS disabled
- The EMS disabled are disadvantaged communities

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<sup>1</sup> Amnesty International, Discrimination, available at <https://www.amnesty.org/en/what-we-do/discrimination/>.

<sup>2</sup> “Algorithmic Regulation” by Karen Yeung and Martin Lodge, chapter on “Digital Discrimination” by Natalia Criado, 2019, <https://oxford.universitypressscholarship.com/view/10.1093/oso/9780198838494.001.0001/oso-9780198838494-chapter-4#:~:text=Digital%20discrimination%20entails%20treating%20individuals,automatically%20processed%20by%20an%20algorithm.>

<sup>3</sup> Notice of Inquiry, Implementing the Infrastructure Investment and Jobs Act: Prevention and Elimination of Digital Discrimination, FCC 22-21, GN Docket No. 22-69 (Mar. 2022) (“*FCC DEI NOI*”).

<sup>4</sup> A Centers for Disease Control website “[What is disability?](#)” explains that:

A disability is any condition of the body or mind (impairment) that makes it more difficult for the person with the condition to do certain activities (activity limitation) and interact with the world around them (participation restrictions). There are many types of disabilities, such as those that affect a person’s:

|          |               |                      |
|----------|---------------|----------------------|
| Vision   | Remembering   | Hearing              |
| Movement | Learning      | Mental health        |
| Thinking | Communicating | Social relationships |

Although “people with disabilities” sometimes refers to a single population, this is actually a diverse group of people with a wide range of needs. Two people with the same type of disability can be affected in very different ways. Some disabilities may be hidden or not easy to see.



## Eliminating Digital Discrimination For the EMS Disabled (Susan Foster and Odette J. Wilkins)

- Brief history on the disabled community's efforts to end discrimination
- How EMS communities compare to other disabled communities
- The settled science from the FCC, FDA, industry and independent experts on EMF health effects
- Federal agencies creating barriers for relief for the EMS disabled
- Energy consumption and pollution from wireless Infrastructure
- The need to accommodate the EMS disabled, metrics and guidelines
- Adopting Former FCC Chairman Tom Wheeler's "fiber-first" policy: fiber optics broadband is a necessity for disadvantaged communities, is the best solution to bridge the digital divide (although adopting a fiber-first policy would ameliorate but not eliminate discrimination against the EMS disabled)
- Addendum: Stories of the EMS disabled – in their own words

### The Impact of Digital Discrimination on the EMS Disabled

Digital discrimination involving algorithmic bias, e.g., in Internet search engine results, reflects and amplifies discrimination in physical space. The EMS disabled suffer algorithmic bias. Search results belittle and invalidate the sufferings of the EMS disabled. The following provides an insight into algorithmic bias:

"Digital discrimination entails treating individuals unfairly, unethically, or just differently based on their personal data that is automatically processed by an algorithm. Digital discrimination often reproduces the existing instances of discrimination in the offline world by either inheriting the biases of prior decision-makers, or simply reflecting widespread prejudices in society."<sup>5</sup>

For example, the scourge of racial discrimination has existed in the physical world throughout history. Its reflection in digital technologies is a new and emerging problem, arising from algorithms' use of race as a profiling factor.<sup>6</sup> Algorithmic biases also discriminate against the EMS disabled. A simple search on Google, for instance, yield results showing a bias against EMS symptoms caused by electro-magnetic frequencies (EMFs) or wireless radiation, despite settled scientific evidence to the contrary. However, the range of issues to address regarding the EMS disabled is even greater than just digital discrimination and extends to misinformation on the Internet that disadvantages the EMS disabled, though not specifically data run through algorithms.

The EMS disabled also significantly suffer from access discrimination, the subject of the *FCC DEI NOI*. They too need broadband, but exposure to wireless broadband emissions sets off their symptoms, so they cannot use wireless technologies or even be around wireless systems. They must use only wired broadband at home or work. A nearby wireless system can drive them from their own homes – a form of constructive eviction. Further, they must avoid many public spaces, including most government and civic buildings that are pervasively covered with electro-magnetic frequencies (EMFs) and radio frequency radiation (RFR) so they cannot meet in person with their government representatives or gather in public with the rest of society. The EMS disabled are unable to work or participate in society and they are routinely even driven from their homes and into homelessness. They egregiously suffer from direct and indirect digital

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<sup>5</sup> Digital Discrimination, Id.

<sup>6</sup> "Emerging digital technologies entrench racial inequality, UN expert warns," <https://www.ohchr.org/en/press-releases/2020/07/emerging-digital-technologies-entrench-racial-inequality-un-expert-warns>.

discrimination in the physical world, they face significant access discrimination and they are subjected to algorithmic discrimination.

## **The EMS Disabled are Disadvantaged Communities**

President Biden’s Justice40 Initiative is designed “to deliver at least 40 percent of the overall benefits from Federal investments in climate and clean energy to disadvantaged communities.”<sup>7</sup> The project focused on how disadvantaged communities should be defined<sup>8</sup> and what metrics the Environmental Protection Agency (EPA) should use to achieve the Initiative’s goals.

How disadvantaged communities are defined is important and needs to be flexible and inclusive. The *FCC DEI NOI* correctly and properly includes the disabled as a whole, but it entirely ignores those disabled by injuries caused by wireless radiation – the EMS disabled. The *FCC DEI NOI* itself discriminates.

The EMS disabled, however, are disadvantaged communities. As an environmental justice issue, the communities that have been left behind are those injured from wireless radiation from base stations, cell phones, and telecommunications infrastructure facilities placed right next to their homes, businesses, schools, medical facilities and other public locations. These disadvantaged communities are significantly suffering from wireless radiation exposure as a result. Base station antennas are being forced onto residents, without notice, without their consent, and without any consideration to injuries to their health, no matter how much they are injured and despite incontrovertible evidence of those injuries.

Wireless radiation cannot be perceived with the naked eye or by smell (such as gas leaking from a stove) and therefore goes unnoticed until one develops symptoms or is injured by it. Nor is there an alarm, as is required for carbon monoxide detection, which also cannot be perceived with the naked eye or by smell, until it is too late to recover. Because wireless radiation is invisible, so, apparently, are the EMS disabled.

Presenting the information in this white paper is an effort to make visible what is otherwise invisible.

Those suffering from exposure to wireless radiation are known as having electromagnetic sensitivity (EMS), or EMS disabled, electromagnetic sensitivity ((ES), radiation poisoning or microwave radiation sickness. For purposes of this paper, we will use the U. S. Access Board designation of EMS disability going back to 2002.<sup>9</sup> Common EMS symptoms include sleep disturbances, chronic fatigue, chronic pain, poor short-term memory, difficulty concentrating (e.g., “brain fog”), mood disturbances (depression/ anxiety), skin problems, dizziness, loss of appetite, heart palpitations, tremors, vision problems, tinnitus, nose bleeds, asthma, reproductive problems and headaches, to name a few.<sup>10</sup>

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<sup>7</sup> <https://www.whitehouse.gov/omb/briefing-room/2021/07/20/the-path-to-achieving-justice40/>

<sup>8</sup> Native Americans are properly also considered disadvantaged communities. The United Keetoowah Tribe brought suit against the FCC because of the FCC’s failure to conduct environmental review of 5G deployment under the National Environmental Policy Act (NEPA). The Court of Appeals for the D.C. Circuit in 2019 found that the FCC acted in an arbitrary and capricious manner in its rule for massive deployment of small cells, particularly with the planned 800,000 locations for 5G deployment in the U.S. To date, there has been no environmental review of 5G, and yet 5G is being deployed unabated.

<sup>9</sup> U.S. Access Board, [Advancing Full Access & Inclusion for All](https://www.access-board.gov/research/building/indoor-environmental-quality/), “Indoor Environmental Quality Project,” <https://www.access-board.gov/research/building/indoor-environmental-quality/>.

<sup>10</sup> “Electrohypersensitivity as a Newly Identified and Characterized Neurologic Pathological Disorder” Int’l Journal of Molecular Sciences, <https://www.mdpi.com/1422-0067/21/6/1915>.

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EMS symptoms have been legally recognized as functional impairments. Sweden was the first country to recognize EMS as a functional impairment in 2002. EMS also became recognized: (a) in 2002 by the U.S. Access Board (the federal agency devoted to accessibility issues for people with disabilities),<sup>11</sup> (b) in 2007 by the Canadian Human Rights Commission,<sup>12</sup> and (c) in 2009 by the European Parliament.<sup>13</sup> Courts have awarded disability claims to people with ES in Australia,<sup>14</sup> France,<sup>15</sup> Spain,<sup>16</sup> United Kingdom,<sup>17</sup> and United States.<sup>18</sup>

Access, digital equity and digital inclusion are vitally important for those disabled or suffering from wireless radiation. The U.S. Access Board (which advises the Justice Department and other state and federal agencies under the Americans with Disabilities Act) notes that a U.S. National Institute of Building Sciences survey of a representative region found that 2-6% of the population are sensitive to electro-magnetic fields.<sup>19</sup> There are other sources showing the proliferation of EMF sensitivities and disabilities.<sup>20</sup>

A 2019 Bevington study,<sup>21</sup> analyzed the prevalence of EMF/EHS within the population:

0.65% Can't work  
1.5% Severe symptoms  
5% Moderate symptoms  
30% Mild symptoms

Based on a population of 332.4 million people in the U.S., the numbers are shockingly high:

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<sup>11</sup> Johansson O. Electrohypersensitivity: state-of-the-art of a functional impairment. *Electromagn Biol Med.* 2006;25(4):245-58. doi: 10.1080/15368370601044150. PMID: 17178584.

<sup>12</sup> Policy on Environmental Sensitivities, Canadian Human Rights Commission, 2007, Policy Reviewed 2014.

<sup>13</sup> Full recognition of electromagnetic hypersensitivity (EHS) in Europe, European Parliament, 2009.

<sup>14</sup> 'Wi-fi allergies' issue flares up in Australia, iNews, <https://www.itnews.com.au/news/wi-fi-allergies-issue-flares-up-in-australia-356354>.

<sup>15</sup> A Woman Has Been Awarded Compensation For Being "Allergic to Wi-Fi", ScienceAlert, 31 August 2015, <https://www.sciencealert.com/a-woman-has-been-award-compensation-for-being-allergic-to-wi-fi>.

<sup>16</sup> Spain: High Court of Madrid Ruling Recognizes "Electrosensitivity" as Grounds for Total Permanent Disability, August 4, 2016, Maris, <https://www.elettrosensibili.it/2016/09/14/spain-high-court-of-madrid-ruling-recognizes-electrosensitivity-as-grounds-for-total-permanent-disability/>.

<sup>17</sup> Gadget 'allergy': French woman wins disability grant, August 27, 2013, BBC News, <https://www.bbc.com/news/technology-34075146>

<sup>18</sup> JML Law Wins Appeal in 'Unprecedented' Disability Case Against LAUSD For Failure to Accommodate Teacher With Electroma, March 26, 2021, Bloomberg <https://www.bloomberg.com/press-releases/2021-03-26/jml-law-wins-appeal-in-unprecedented-disability-case-against-laUSD-for-failure-to-accommodate-teacher-with-electroma>.

<sup>19</sup> U.S. Access Board – Advancing Full Access & Inclusion for All - "Indoor Environmental Quality Project," <https://www.access-board.gov/research/building/indoor-environmental-quality/>.

<sup>20</sup> Electrohypersensitivity (EHS) Is An Environmentally-Induced Disorder That Requires Immediate Attention, Dr. Magda Havas, *J. Sci Discov* (2019), <http://www.e-discoverypublication.com/wp-content/uploads/2019/03/JSD18020-final.pdf>; Presentation by Karl Maret, M.D., M.Eng., Presentation, 1-17-20, <https://www.youtube.com/watch?v=Xilsy3mcjCY>; "The Bioinitiative Report," <https://bioinitiative.org/>.

<sup>21</sup> "The Prevalence of People with Restricted Access to Work in Manmade Electromagnetic Environments," *Journal of Environment and Health Science*, <https://mdsafetech.files.wordpress.com/2019/10/2018-prevalence-of-electromagnetic-sensitivity.pdf>.

| Percentages            | Number of U.S. EMF Sensitive/Disabled |
|------------------------|---------------------------------------|
| Can't work – 0.65%     | 2.16 million                          |
| Severe symptom – 1.5%  | 4.99 million                          |
| Moderate symptoms – 5% | 16.6 million                          |
| Mild symptoms – 30%    | 99.7 million                          |

Vulnerable communities are significantly and negatively affected by wireless radiation. Many of the EMS disabled and EMS sensitive are already disadvantaged and/or indigent and the condition only makes things worse. The condition itself often turns even accomplished professionals into indigency. The EMS Disable and EMS sensitive are not able to live, work or visit in spaces or buildings where wireless equipment is deployed. They also cannot successfully participate in virtual remote settings using free wireless connectivity because wireless broadband is a barrier to them: their lives are placed in jeopardy with any exposure to wireless. Children are also a vulnerable community and there is documented research on the adverse effects of wireless radiation as it penetrates even more deeply into the skulls of children compared to adults.<sup>22</sup>

Access to work is critical for disadvantaged communities. The EMS disabled are most affected when they cannot work safely in environments containing wireless radiation inside a building, such as Wi-Fi, or wireless radiation coming from outside a building from nearby base station antennas.<sup>23</sup> This is not a disability that only affects the EMS disabled but given the estimated number of people with EMS symptoms in the U.S., it has the potential of adversely affecting America's workforce. EMS disability can be accommodated by creating wireless radiation free zones that employ only wired facilities in the work environment.

### **Brief History On the Disabled Community's Efforts to End Discrimination**

The Rehabilitation Act of 1973 was a starting point, but the most significant express validation of and protection for the disabled was finally achieved in the U.S. with the passage of the Americans with Disabilities Act of 1990 (ADA). The manner of its passage is noteworthy. Wheelchair-bound Americans took to the Capitol steps, left their wheelchairs behind and crawled up the Capitol steps. Included among them was an 8-year-old disabled girl. This demonstration by these "wheelchair warriors" was captured by the media and called the "Capitol Crawl," as "a physical demonstration of how inaccessible architecture impacts people with disabilities."<sup>24</sup> The ADA extended the prohibition against discrimination beyond federal contractors to employment, public services and accommodations.<sup>25</sup>

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<sup>22</sup> See, <https://ehtrust.org/research-on-childrens-vulnerability-to-cell-phone-radio-frequency-radiation/> and <https://ehtrust.org/science/scientific-imaging-cell-phone-wi-fi-radiation-exposures-human-body/>.

<sup>23</sup> "The Prevalence of People with Restricted Access to Work in Manmade Electromagnetic Environments," <https://mdsafetech.files.wordpress.com/2019/10/2018-prevalence-of-electromagnetic-sensitivity.pdf>.

<sup>24</sup> History Series, "When the 'Capitol Crawl' Dramatized the Need for Americans with Disabilities Act," <https://www.history.com/news/americans-with-disabilities-act-1990-capitol-crawl>.

<sup>25</sup> International Brotherhood of Teamsters, "The Rehabilitation Acts of 1973 and 1974, and the Americans with Disabilities Act of 1990," <https://teamster.org/rehabilitation-acts-1973-and-1974-and-american-disabilities-act-1990/>.

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EMS disability is as silent and invisible as the toxin that creates the disability in the first place. The 3% (mild) and 35% (moderate)<sup>26</sup> portion of the population (between 9,975,000 or 115,500,000 million Americans) suffering from EMS, however, cannot travel to Washington DC to potentially sit on the Capitol steps. RF is so pervasive any effort similar to the “Capitol Crawl” to raise awareness would put them at physical risk. These people have been silenced and rejected. They are isolated from play with other children, from study with fellow students, from advancement in the workforce and the financial means to support themselves in anything but subsidized housing. But even federally-subsidized housing is becoming inaccessible since those buildings appear to be a target for wireless tower leases because it is the path of least resistance in increasingly resistant communities.

### How EMS Disabled Communities Compare to Other Disabled Communities

The percentages of the EMS disabled are either comparable to or exceed the percentages of other disabled communities. The percentages of the population with electrosensitivity can range, internationally, from 1.5% to 13.3%. Also, based on Bevington’s 2019 study cited above, percentages in the U.S. can range from .65% to 30%, depending on symptom severity.

Many countries have documented a prevalence rate for electrosensitivity in several population-based studies of: 1.5% in Sweden (Hillert et al, 2002); 3.2% in California (Levallois, 2002); 5% in Switzerland (Huss, 2002); 9% in Germany (INFAS, 2006); 11% in the England (Hallberg & Oberfeld, 2006); 3.5% in Austria (Schröttner, 2008); and 13.3% in Taiwan (Tseng, 2011). The World Health Organization has noted that “approximately 10% of reported cases of EHS were considered severe.” (A similar term to EMS, EHS means electro-hyper-sensitivity.)

Other disabilities now widely recognized in the U.S. include intellectual and developmental disability and mobility disability. According to the Special Olympics, 1.9% of the U.S. population or about 6.5 million people in the U.S. have an intellectual and developmental disability The American Association of Intellectual and Developmental Disabilities notes that this disability can be caused by injury, disease, or a problem in the brain, severe head injury, stroke, neonatal complications, and may include Down Syndrome, Fetal Alcohol Syndrome or Fragile X Syndrome. According to the Centers for Disease Control (CDC), mobility disability (defined by the CDC as “serous difficulty walking or climbing stairs”) affects 13.7% of the population, or 45.2 million people in the U.S.

| Location      | Percentages of Electrosensitivity |
|---------------|-----------------------------------|
| Sweden        | 1.5%                              |
| California    | 3.2%                              |
| Austria       | 3.5%                              |
| England       | 11%                               |
| Switzerland   | 5%                                |
| Germany       | 9%                                |
| Taiwan        | 13.3%                             |
| United States | 3.2% - 30%                        |

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<sup>26</sup> C4ST Referencing Havas 2007, <https://c4st.org/what-is-electrosensitivity/>.

| United States                           | Percentages of Other Disabled People | Millions Of People |
|---|--------------------------------------|--------------------|
| Intellectual & Developmental Disability | 1.9%                                 | 6.5 mil            |
| <b>Mobility</b> Disability              | 13.7%                                | 45.2 mil           |

## The Settled Science from Industry, Independent Scientists and Experts, and the FCC and FDA On EMF Health Effects

### Industry's Settled Science:

In 2000, the ECOLOG Institute, a research organization founded in 1991 by scientists from the University Hannover, was commissioned by T-Mobile in Germany (parent company to T-Mobile in the U.S.), to study the risks of electromagnetic fields (EMFs) because of the rapidly expanding mobile telecommunications industry. The aim was to evaluate EMF risks and the need for implementing precautionary health protection. The results were twofold: (1) findings of adverse health impacts associated with exposure to EMFs and (2) strong precautions and warnings to significantly lower the power of the EMFs to which the public would be exposed.<sup>27</sup>

This 2000 ECOLOG Institute study was apparently never distributed nor translated into English until a copy was leaked almost a decade later to a nonprofit who commissioned its translation. Here are some of the findings:

1. **Cancer:** “[e]lectromagnetic fields with frequencies in the mobile telecommunications range do play a role in the development of cancer. This is particularly notable for tumours of the central nervous system, for which there is only the one epidemiological study so far, examining the actual use of mobile phones. The most striking result of this study was an obvious correlation between the side at which the phone was used and the side at which the tumour occurred.”
2. **Leukemia:** “Higher risks were also demonstrated for several forms of leukaemia.”
3. **Testicular Cancer:** “The epidemiological findings for testicular cancer also need to be interpreted in conjunction with the results of the studies of fertility problems occurring in relation to high frequency electromagnetic fields.
4. **Cellular Research & Cancer:** “The results of the studies for all stages of cancer development from the damage of the genetic material via the uninhibited proliferation of cells and debilitation of the immune system (see below) up to the manifestation of the illness prove effects at power flux densities of less than 1 W/m<sup>2</sup>. For some stages of cancer development, intensities of 0.1 W/m<sup>2</sup> or even less may suffice to trigger effects.”
5. **Debilitation of the Immune System:** “Damaging effects on the immune system which can aid the development of illnesses were demonstrated in animal experiments at power flux densities of 1 W/m<sup>2</sup> (mouse, exposure duration 6 days, 3 hours per day, SAR (mouse) 0.14W/kg). In in vitro

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<sup>27</sup> Mobile Telecommunications and Health/Review of the current scientific research, ECOLOG Institut, Hannover, April 2000, available at <https://docs.google.com/document/d/1Rd2c900GURf9Y9YQY-L2MHAFDYGIeT2R1tyMZYQhZTEA/edit>.

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experiments on lymphocytes, defects of the genetic material were demonstrated at power flux densities of circa  $10 \text{ W/m}^2$ . The presence of stress hormones, which when permanent can debilitate the immune system, was found to be increased in human experiments from power flux densities of  $0.2 \text{ W/m}^2$ . In animal experiments (rat) a similar effect was observed at a Specific Absorption Rate of circa  $0.2 \text{ W/kg}$ .”

6. **Influences on the Central Nervous System and Cognitive Function:** “Effects of high frequency electromagnetic fields on the central nervous system are proven for intensities well below the current guidelines. Measurable physiological changes have been demonstrated for intensities from  $0.5 \text{ W/m}^2$ . Impairments of cognitive functions are proven for animals from  $2 \text{ W/m}^2$ .”
7. **Electrosensitivity or Electromagnetic Hypersensitivity:** The sensitivity manifests in a variety of symptoms including: nervous symptoms such as sleep disturbances, headaches, exhaustion, lack of concentration, irritability, anxiety, stress, cardiovascular complaints, disruptions of hormones and metabolism, skin complaints. The composition and strength of the complaints varies enormously in different individuals. The correlation of the complaints with electromagnetic exposures and other environmental influences seems to vary strongly not only between affected persons but also in time, a fact that has so far impeded the conclusive scientific proof of a cause-effect relationship in provocation studies. The present results of scientific studies are often not conclusive and partly contradictory. On the other hand, however, there is a wealth of data.

“On the basis of current knowledge it is impossible to estimate the risk of electrosensitive reactions or to make recommendations for guidelines designed to avoid such a risk for the general population, ***which is composed of sensitive and non-sensitive persons***”. [Emphasis added]

The ECOLOG Institute then went on to emphasize the importance of developing “a strategy for the research of the electrosensitivity phenomenon and its incidence, ***which would acknowledge the failure of traditional scientific methods to address the problem and allow the inclusion of the data available from the self-help groups and associations of the affected.***” [Emphasis added]. The ECOLOG study recommended that when the risk is impossible to estimate, precautionary health measures must be implemented:

- “If a security factor of 10 is applied to this value, as it is applied by ICNIRP and appears appropriate given the current knowledge, the precautionary limit should be  $0.01 \text{ W/m}^2$ . This should be rigorously adhered to by all base stations near sensitive places such as residential areas, schools, nurseries, playgrounds, hospitals and all other places at which humans are present for longer than 4 hours.”

### **Exposures of Mobile Phone Users**

- “Given the state of technology now and in the foreseeable future, it is currently technically impossible to apply the recommended maximum value for mobile base stations also to the use of mobile phones. However, a lowering of the guidelines to a maximum of  $0.5 \text{ W/m}^2$  should urgently be considered.”
- “A particular problem in this exposure group is posed by children and adolescents, not only because their organism is still developing and therefore particularly susceptible, but also because many adolescents have come to be the most regular users of mobile phones.”
- “Advertising towards this population group should be banned. Furthermore, particular efforts should be made to lower the exposures during calls. It would be recommendable to conduct

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(covert) advertising campaigns propagating the use of headsets. It would also be important to develop communications and advertising aiming at minimising the exposures created by carrying mobile phones in standby mode on the body.”

In direct conflict with these findings and warnings, 22 years later, T-Mobile (U.S.) states on its website under “**Radio Frequency Safety:**”<sup>28</sup> Wireless phones emit low levels of radio-frequency (RF) energy during use. **Based on scientific data currently available, T-Mobile has not determined that RF energy from wireless phones causes health risks.** Nonetheless, we want our customers to be informed as the wireless industry and government agencies continue to monitor the ongoing scientific research on this important subject. [Emphasis added]

T-Mobile has chosen to not just ignore, but went on to purposefully misrepresent, the study results it commissioned.

There may be no better example of misinformation on the Internet that disadvantages the disabled, though not specifically data run through algorithms. Rather, this is an omission of the facts and findings of the ECOLOG Institute. The recommendations were replete with warnings to bring the levels of radiation down, particularly in vulnerable locations “residential areas, schools, nurseries, playgrounds, hospitals and all other places at which humans are present for longer than 4 hours.”

This misinformation has been perpetuated by global health organizations and government agencies: FCC, FDA and National Cancer Institute (NCI).<sup>29</sup> A fourth website is the World Health Organization (WHO) which also has a similar bias (due to conflicts of interests since a number of ICNIRP members are also members of the WHO EMF Project).<sup>30</sup> There appears to be no representation of the EMS disabled population in these institutions.

The damage this misinformation has caused the health and well-being of populations globally and particularly, the invisible and silenced EMS disability population, is unknown. But the outcome is easy to see. Many have been silenced, in very large part, because their friends, family members, physicians and local, state and federal government leaders get their information from the same four biased websites.

### **Facts and Statements by U.S. Preeminent Scientists and Experts In the Area of RFR Research**

As shown by the following facts and statements by the United States’ preeminent scientists and experts in the area of wireless RFR research, it is well established that wireless radiation exposure produces or has the recognized potential of producing biological effects.

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<sup>28</sup> “Radio frequency safety,” <https://www.t-mobile.com/responsibility/consumer-info/safety/radio-frequency-safety>.

<sup>29</sup> The FCC states that “currently no scientific evidence establishes a causal link between wireless device use and cancer or other illnesses.”

The FDA, states that, based on current data, it “believes that the weight of scientific evidence does not show an association between exposure to radiofrequency from cell phones and adverse health outcomes.”

The National Cancer Institute states that “although there have been some concerns that radiofrequency energy from cell phones held closely to the head may affect the brain and other tissues, to date there is no evidence from studies of cells, animals, or humans that radiofrequency energy can cause cancer.”

<sup>30</sup> The World Health Organization states that “to date, no adverse health effects have been established as being caused by mobile phone use,” despite a “large number of studies [that] have been performed over the last two decades to assess whether mobile phones pose a potential health risk.”



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1. In 2011, the World Health Organization's (WHO) International Agency for Research on Cancer (IARC) classified wireless radiation as a Group 2B possible carcinogen.<sup>31</sup> This conclusion was based upon an increased risk of malignant brain cancer (glioma) identified in those who used cell phones for over 10 years for an average of 30 minutes per day.

Anthony B. Miller, M.D., Senior Epidemiologist, IARC, states in a 2018 updated assessment to the 2011 IARC classification of wireless radiofrequency radiation (RFR), "***When considered with recent animal experimental evidence, the recent epidemiological studies strengthen and support the conclusion that RFR should be categorized as carcinogenic to humans (IARC Group 1).***"<sup>32</sup>

2. "Since 2011, the scientific evidence linking wireless to cancer has significantly increased and today several published reviews conclude that the current body of evidence indicates cell phone radiation is proven Group 1 human carcinogen (Miller et al 2018, Peleg et al 2018 Carlberg and Hardell 2017, Belpomme et al 2018)." <sup>33</sup>

3. Christopher J. Portier, Ph.D., former director of the National Center for Environmental Health at the Centers for Disease Control and Prevention (CDC) and a scientific advisor for the WHO, reviewed the most recent body of scientific research and literature to look at the feasibility of RFR causing specific brain tumors in humans and concluded in March, 2021:

- "***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.***"

<sup>34</sup>

4. In 2021, the Court of Appeals for the D.C. Circuit in *EHT et al v. FCC* ruled that the FCC's 2019 decision to maintain their 26-year-old thermal-based exposure "safety" guidelines demonstrated that the FCC was acting in an "***arbitrary and capricious***" manner "***in its complete failure to respond to comments concerning environmental harm caused by RF radiation***" below the current FCC limits.<sup>35</sup>

The Court further ruled that, "***The factual premise—the non-existence of non-thermal biological effects—underlying the current RF guidelines may no longer be accurate.***" The Court pointed out that the FCC had ignored scientific evidence documenting biological harm at non-thermal levels (i.e., at levels hundreds and even thousands of times below the current FCC wireless exposure "safety" guidelines). Indeed, 11,000 pages of scientific studies of biological hazards from RFR and hundreds of

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<sup>31</sup> [https://www.iarc.who.int/wp-content/uploads/2018/07/pr208\\_E.pdf](https://www.iarc.who.int/wp-content/uploads/2018/07/pr208_E.pdf)

<sup>32</sup> <https://www.sciencedirect.com/science/article/abs/pii/S0013935118303475>

<sup>33</sup> <https://ehtrust.org/science/whoiacr-position-on-wireless-and-health/>

<sup>34</sup> <https://www.saferemr.com/2021/03/expert-report-by-former-us-government.html?m=1>

<sup>35</sup> *Env'tl. Health Tr., et al. v. FCC*, 9 F.4th 893 (D.C. Cir. 2021). For overview of the case, see generally <https://ehtrust.org/in-historic-decision-federal-court-finds-fcc-failed-to-explain-why-it-ignored-scientific-evidence-showing-harm-from-wireless-radiation/>.

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personal accounts of injuries from RFR were in the FCC docket. The Court of Appeals admonished the FCC that it could not ignore all this scientific evidence.

5. Ronald Melnick, Ph.D., retired NIEHS senior toxicologist who won the American Public Health Association's 2007 David P. Rall Award for public health advocacy states:

***"I strongly feel health and regulatory agencies should promote policies that reduce cell phone radiation exposure, especially for children and pregnant women. The agencies in the U.S. say, "if you are concerned" rather than "we are concerned." Agencies should be clear and straightforward educating the public on "here is what you should do."***

***"The risk can be greater for children than adults due to the increased penetration of the radiation within brains of children and the fact that the developing nervous system is more susceptible to tissue damaging agents."***<sup>36</sup>

6. The American Academy of Pediatrics, a non-profit professional organization of 60,000 primary care pediatricians, pediatric medical subspecialists, and pediatric surgical specialists, stated in a letter to the FCC on July 12, 2012:

***"Children ... are not little adults and are disproportionately impacted by all environmental exposures, including cell phone radiation. In fact, according to IARC, when used by children, the average RF energy deposition is two times higher in the brain and 10 times higher in the bone marrow of the skull, compared with mobile phone use by adults."***<sup>37</sup>

7. New Hampshire formed a State Commission to examine whether wireless radiation is harmful to human health. The majority of that New Hampshire State Commission came to the conclusion that exposure to wireless radiation is harmful to human health and the environment. The commission was convened through bipartisan legislation<sup>38</sup> that was signed by the governor. Commission membership included unbiased experts in fields relating to health and radiation exposure, and they issued their Final Report in November 2020.<sup>39</sup> A quote from that report (taken from Recommendation 1) provides the Commission findings with regards to the effectiveness of FCC regulations:

***"The majority of the Commission believes that the FCC has not exercised due diligence in its mission to manage the electromagnetic environment by not setting exposure limits that protect against health effects. They have failed to support technical means and investigations aimed at reducing human exposures to electromagnetic radiation (EMR) in telecommunications systems and optimize wireless modulations to reduce biological and health impacts."***

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<sup>36</sup> [https://www.youtube.com/watch?v=zSx\\_yDzxvM8&t=2295s](https://www.youtube.com/watch?v=zSx_yDzxvM8&t=2295s)

<sup>37</sup> <https://ehtrust.org/wp-content/uploads/American-Academy-of-Pediatrics-letter-to-the-FCC-July-12-2012.pdf>; see also images of cell phone usage by children and the penetration of wireless radiation into the brain <https://ehtrust.org/research-on-childrens-vulnerability-to-cell-phone-radio-frequency-radiation/>.

<sup>38</sup> <https://legiscan.com/NH/text/HB522/2019>.

<sup>39</sup> <http://www.gencourt.state.nh.us/statstudcomm/committees/1474/reports/5G%20final%20report.pdf>.

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8. Experts from the technology industry have also spoken out about the hazards of wireless radiation, e.g.: Frank Clegg, former President of Microsoft Canada,<sup>40</sup> and Jeromy Johnson, who holds an advanced degree in Civil Engineering and worked in Silicon Valley's financial industry for over 15 years<sup>41</sup> and who was personally impacted by wireless radiation.
9. Physicians, scientists and engineers have documented the adverse effects of wireless radiation. See, e.g. the statements of 57 physicians, 19 scientists and an engineer in a smart meters case brought in Pennsylvania's Supreme Court, and supported by an amicus brief in 2021 of 80 organizations, based on the adverse effects of wireless radiation.<sup>42</sup>
10. EMF researchers and physicians have authored more than 20 position papers and resolutions cautioning about EMF health risks (e.g. in 2016, 220 scientists from 42 countries signed an International Appeal directed to the United Nations and the WHO, calling for protection from non-ionizing EMF exposure).<sup>43</sup>
11. The European Parliament has recognized "The European Parliament ... calls on Member States to follow the example of Sweden and to recognise persons that suffer from electrohypersensitivity as being disabled so as to grant them adequate protection as well as equal opportunities."<sup>44</sup>

You can also hear directly from grassroots communities of the health problems that they have been experiencing from RFR radiation. An example is in Pittsfield, MA where long-time residents and their children suffered from serious physical ailments, including vomiting in their beds, after the installation of a wireless cell tower near their homes, and from which they had to evacuate.<sup>45</sup> The Pittsfield, MA Board of Health recently issued an emergency order to a telecommunications carrier to show cause why a cease and desist order should not be issued against the carrier to turn off a cell tower based on express findings of

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<sup>40</sup> <https://www.youtube.com/watch?v=h4TdY344Now>.

<sup>41</sup> <https://www.youtube.com/watch?v=F0NEaPTu9oI>.

<sup>42</sup> *Povacz v. Pennsylvania Public Utility Commission*, <https://childrenshealthdefense.org/wp-content/uploads/Brief-and-Addendum-Submitted-9-14.pdf>, starting on p.64; for an overview of the case, see <https://childrenshealthdefense.org/defender/chd-amicus-brief-supreme-court-pennsylvania-reject-smart-meters-mandate/>.

<sup>43</sup> EUROPAEM EMF Guideline 2016 for the prevention, diagnosis and treatment of EMF-related health problems and illnesses, Belyaev et al, *Rev Environ Health* 2016, DOI 10.1515/reveh-2016-0011, Received March 16, 2016; accepted May 29, 201, available at <https://www.diagnose-funk.org/download.php?field=filename&id=363&class=DownloadItem>.

<sup>44</sup> "Digitalization Challenges for Europe," <https://www.eesc.europa.eu/sites/default/files/files/ge-01-19-295-en-n.pdf>; "European Parliament, Health Impact of 5G," <https://ehtrust.org/the-european-parliament-panel-health-impact-of-5g/>; European Parliament – Policy Recommendations On Cell Phones, Wireless Radiation & Health, May 10, 2017, <https://ehtrust.org/european-parliament-policy-recommendations-cell-phones-wireless-radiation-health/>; European Parliament resolution on the health problems associated with electromagnetic fields (2008/2211), [https://www.europarl.europa.eu/doceo/document/TA-6-2009-0216\\_EN.html](https://www.europarl.europa.eu/doceo/document/TA-6-2009-0216_EN.html).

<sup>45</sup> <https://ehtrust.org/statement-by-courtney-gilardi-after-pittsfield-board-of-health-votes-to-send-cess-and-desist-order-for-verizon-cell-tower/>.

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injuries sustained by residents as a result of the cell tower.<sup>46</sup> There have been other reports of health effects from cell towers.<sup>47</sup>

**Federal Communications Commission:** The FCC admitted in 2019 that at least some RFRs can cause instantaneous non-thermal adverse effects with radio-frequency radiation (RFR) frequencies ranging between 3 KHz and 10 MHz.<sup>48</sup> However, the FCC averages exposure levels over 30 minutes, which completely obscures the effects of the pulsating nature of RFR and does not account for 24/7 exposure to RFR or its constant pulsations by the population.

### **Food and Drug Administration:**

Linda Birnbaum, Ph.D., former Director of the U.S. NIEHS and former Director of the National Toxicology Program (NTP) spanning across the Department of Health and Human Services organizations which involves NIH, FDA and CDC, has stated:<sup>49</sup>

- ***“Effects from [wireless] radiofrequency radiation (RFR) such as genetic toxicity, immunotoxicity, oxidative stress, changes in gene and protein expression, changes in cell differentiation and proliferation, and increased permeability of the blood brain barrier were reported in these [scientific] publications.” (pg. 8).***
- ***“The phase I [NTP] studies established that non-thermal levels (<1°C or no detectible change in temperature) of RFR exposure had toxicological implications in biological systems.” (pg. 9).***
- ***“The NTP found and published evidence of DNA damage after only 90 days of exposure.” (pg. 9).***
- ***“Overall, the NTP findings demonstrate the potential for RFR to cause cancer in humans. The independent peer review of the entire proceedings carried out by toxicologists, pathologists and statisticians independent of the NTP staff conducted March 26-28, 2018, concluded that there was ‘clear evidence of cancer,’...exposure to RFR is associated with an increase in DNA damage.” (pg. 11).***

**NOTE:** NTP refers to the National Toxicology Program.<sup>50</sup> Since completion of the \$30 million NTP study (originally sponsored by the FDA to research possible biological effects of RFR), the results have been replicated by the Ramazzini Institute<sup>51</sup> in another study using exposures below the FCC thermal thresholds<sup>52</sup> (simulating emissions from cellular base stations and wireless transmitters).

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<sup>46</sup> <https://ehtrust.org/wp-content/uploads/Pittsfield-Health-Board-Cell-Tower-Order-to-Verizon-April-11-2022-FINAL-REDACTED.pdf>; see also, <https://ehtrust.org/the-first-cease-and-desist-order-against-verizon-cell-tower-to-be-sent-on-friday-by-by-board-of-health-pittsfield-ma/>.

<sup>47</sup> Cell Tower Health Effects <https://www.saferemr.com/2015/04/cell-tower-health-effects.html>, Center for Family and Community Health, School of Public Health, University of California, Berkeley.

<sup>48</sup> *Proposed Changes in the Commission’s Rule Regarding Human Exposure to Radiofrequency Electromagnetic Fields*, 34 FCC Rcd 11687, 11743-11745, ¶¶122- 124 & nn. 322-335 (2019). It also noted that these harms occur instantaneously. The FCC currently averages exposure levels over 30 minutes, which completely obscures the acknowledged instantaneous response.

<sup>49</sup> <https://ehtrust.org/wp-content/uploads/20-1025-Amicus-Brief-Joe-Sandri.pdf>.

<sup>50</sup> <https://ntp.niehs.nih.gov/whatwestudy/topics/cellphones/index.html>.

<sup>51</sup> <https://pubmed.ncbi.nlm.nih.gov/29530389/>.

<sup>52</sup> <https://ehtrust.org/worlds-largest-animal-study-on-cell-tower-radiation-confirms-cancer-link/>.

## Federal Agencies Creating Barriers For Relief For The EMS Disabled

The U.S. Department of Housing and Urban Development (HUD) has issued guidance to its agency not to recognize any EMS claims.<sup>53</sup> This has created bias within the agency and other agencies:

“The Department of Energy and Department of Justice have also received numerous complaints dealing with these issues and have informed HUD that they will not open investigations under Section 504 based on these allegations. Based on advice from HUD’s Office of General Counsel, FHEO will not accept as jurisdictional allegations dealing with Smart Meters, RF and/or EMF issues, and any complaints already accepted will be closed... HUD reimburses only for cases that are jurisdictional under the federal Fair Housing Act. Where such complaints are accepted by a FHAP, they will not be accepted by HUD for payment.”<sup>54</sup>

The FCC has continued, unabated, to deploy 5G and other wireless technologies, despite the known dangers of wireless radiation and despite recent court rulings against the FCC. The FCC’s claim of pre-emption on radiofrequency emissions has fueled the unfettered deployment of wireless infrastructure, the exacerbation of adverse health impacts on the EMS disabled, and the continued bias against the EMS disabled.

### ***Would you board a plane whose safety guidelines have not been updated since 1996?***

- In 2019, the Court of Appeals for the D.C. Circuit ruled against the FCC’s failure to engage in environmental review of small cell deployment. To date, there has been no environmental review of small cells in general or 5G in particular, yet 5G is being deployed unabated. There has been no safety testing of 5G, as Senator Blumenthal established during Senate testimony by telecommunications executives in 2019.<sup>55</sup>  
The FCC has declined to update its wireless “safety” emission guidelines since 1996, and in 2019 decided that the guidelines did not need to be updated.
- The FCC received 11,000 pages of scientific studies of proven wireless harms and hundreds of people reporting their injuries from wireless radiation. The FCC ignored all of those submissions.
- After the FCC ignored those submissions, in August 2021, the Court of Appeals for the D.C. Circuit again ruled against the FCC and remanded its wireless emission guidelines back to the FCC for reconsideration. It called out the FCC for “its complete failure to respond to comments concerning environmental harm caused by” wireless radiation below the current FCC guidelines. The FCC has so far ignored the Court’s remand order.
- Despite these two court decisions, the FCC’s Technical Advisory Council (TAC) continues to discuss the unfettered deployment of wireless technologies. Indeed, there is a scheduled June 9, 2022 meeting of TAC to discuss “6G, artificial intelligence, advanced spectrum sharing technologies, and emerging wireless technologies, including new tools to restore Internet access during shutdowns

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<sup>53</sup> Maine Human Rights Commission, April 25, 2017.

<sup>54</sup> Letter addressed to “Fair Housing Enforcement Partners” by Joseph A. Pelletier, Director, Fair Housing Assistance Program, U.S. Dept. of Housing and Urban Development; obtained from Maine Human Rights Commission, 2017.

<sup>55</sup> <https://mdsafetech.org/2019/02/13/no-research-on-5g-safety-senator-blumenthal-question-answered/>.

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and other disruptions." Those serving on TAC are mostly from the telecommunications industry. There is no representation for the EMS disabled or for any of the grassroots organizations or non-profits representing the interests of the EMS disabled.

The New Hampshire Commission examining EMF health effects extended an invitation to provide comment or participate. It went unanswered. The New Hampshire Commission concluded.

***"The FCC, using the science that they receive from other agencies and scientific/engineering associations, has set the allowable power intensity that can be emitted from these antennae. Testimony shows these limits are set well above many other industrialized nations. There are concerns by many Washington, DC watchers that the FCC is a captive agency whose Commission members come from the industry they are overseeing."***

It was recently announced that the FCC is considering deploying Wi-Fi in school buses.<sup>56</sup> No accommodation is being contemplated for EMS disabled children who will have no other safe school transportation alternative.

## Energy Consumption and Pollution from Wireless Infrastructure and Devices

Another objective of the Justice40 Initiative is clean energy. Wireless is not clean energy.

What is emitted from wireless infrastructure, cell towers and cell phones is referred to as wireless radio-frequency radiation (RFR), electro-magnetic radiation (EMR), electro-magnetic fields (EMF), microwave radiation or wireless radiation. "ElectroSmog refers to all man-made electromagnetic radiation created and present in our surrounding environment."<sup>57</sup>

The environmental footprint of wireless infrastructure contributes more to global warming than it does in preventing it.<sup>58</sup> Wireless is not so "green."<sup>59</sup> As far back as 2013, it was predicted that the "wireless cloud" would produce "an increase in carbon footprint from 6 megatonnes of CO<sub>2</sub> in 2012 to up to 30 megatonnes of CO<sub>2</sub> in 2015, the equivalent of adding 4.9 million cars to the roads," with up to 90% of this consumption "attributable to wireless access network technologies ..."<sup>60</sup> More recently, energy consumption for wireless infrastructure has been reported at ten times that of fiber optics (with 5G requiring 2 to 3.5 times the energy needed for 4G towers).<sup>61</sup> Energy consumption from 5G "is expected to increase 61x between

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<sup>56</sup> "FCC Chairwoman Rosenworcel Pushes for E-Rate Funding of School Bus Wi-Fi," May 11, 2022, <https://stnonline.com/news/fcc-chairwoman-rosenworcel-pushes-for-e-rate-funding-of-school-bus-wi-fi/>.

<sup>57</sup> <http://www.emfrf.com/electrosmog/>.

<sup>58</sup> <https://ehtrust.org/wp-content/uploads/5G-and-Climate-Change-Flyer-EHT.pdf>.

<sup>59</sup> Environmental Health Trust, "5G is Not So Green ..." <https://myemail.constantcontact.com/Studies-Confirm-5G-4G-Will-Increase-Radiation-Exposure.html?soid=1116515520935&aid=2ptEVCn03-U>.

<sup>60</sup> <https://ehtrust.org/wp-content/uploads/5G-and-Climate-Change-Flyer-EHT.pdf>.

<sup>61</sup> <https://www.emfacts.com/2020/09/5g-base-stations-use-up-to-three-and-a-half-times-more-energy-than-4g-infrastructure/>.

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2020 to 2030 due to the energy demands of powerful network elements like massive MIMO<sup>62</sup> and edge servers [and] the proliferation of 5G cell sites ...”<sup>63</sup>

In terms of pollution, even the telecommunications industry has referred to wireless as a pollutant in their product protection plans for which they disclaim liability for personal injury. For example, an industry brochure for consumers for cell phone insurance protection states:

***"Pollutants means any ... gaseous, or thermal irritant or contaminant including ... artificially produced electric fields, magnetic field, electromagnetic field, sound waves, microwaves and all artificially produced ionizing or non-ionizing radiation ..."***<sup>64</sup>

Similar definitions for pollution are in the product protection plans for other telecommunications companies.<sup>65</sup>

Two of the largest insurance companies in the world (i.e., Lloyd’s of London and Swiss Re) have declined to insure telecom companies for any liability for personal injury that results from RFR exposures.<sup>66, 67, 68</sup> Insurance companies, reviewing potential RFR injuries to the public from a risk analysis perspective, have assessed RFR as “high” risk and is, therefore, excluded from coverage as a general matter. The insurance industry clearly acknowledges the high potential of claims of RFR injuries from the public arising from RFR exposure.

Minority and rural communities have historically been affected by environmental hazards. Those mistakes should not be amplified by their exposure to wireless RFR in close proximity to their homes, schools and businesses. Fiber optics to the premises (FTTP) is the superior choice for these communities, where digital inclusion and environmental equity are needed to bridge the digital divide. Fiber optics has “[l]ower energy consumption, reduced waste and sustainable architecture, characteristics that make fiber infrastructure an environmentally advantageous choice.”<sup>69</sup> “Fiber has a minimal ecological impact, reduces waste, consumes very little energy and helps decrease greenhouse gas emissions.”<sup>70</sup>

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<sup>62</sup> MIMO means Multiple-Input Multiple-Output and “is a wireless technology that uses multiple transmitters and receivers to transfer more data at the same time” by combining “data streams arriving from different paths” in contrast to Single-Input Single-Output (SISO) technology which “can only send or receive one spatial stream at a time.” See, <https://www.intel.com/content/www/us/en/support/articles/000005714/wireless/legacy-intel-wireless-products.html>.

<sup>63</sup> <https://ehtrust.org/report-5g-to-increase-energy-consumption-by-61-times/>.

<sup>64</sup> <https://ehtrust.org/wp-content/uploads/device-protection-brochure-nationwide.pdf>.

<sup>65</sup> <https://ehtrust.org/key-issues/electromagnetic-field-insurance-policy-exclusions/>; <https://ehtrust.org/wp-content/uploads/ATT-Multi-Device-Protection-Pack-Insurance.pdf>, <https://ehtrust.org/wp-content/uploads/Sprint-Insurance-Terms-and-Conditions-Downloaded-2019.pdf>.

<sup>66</sup> <https://5gtechnologynews.com/insurance-companies-can-refuse-claims-related-to-electromagnetic-radiation-illnesses/>.

<sup>67</sup> <https://ehtrust.org/wp-content/uploads/Swiss-Re-SONAR-Publication-2019-excerpt-1.pdf>, pg. 29.

<sup>68</sup> <https://ehtrust.org/key-issues/reports-white-papers-insurance-industry>.

<sup>69</sup> <https://www.cablinginstall.com/cable/fiber/article/16465844/how-fiber-can-help-make-your-network-greener>.

<sup>70</sup> Fiber Optic Broadband, A Greener Internet Solution, <https://www.otelco.com/a-greener-internet-solution/>.

## **The Need to Accommodate Disadvantaged Communities of EMS Disabled, Metrics and Guidelines**

The EMS disabled is a disadvantaged community that requires affirmance and accommodation. The Fair Housing Act (“FHA”)<sup>71</sup> and Americans with Disabilities Act (“ADA”)<sup>72</sup> require accommodations relating to a “physical or mental impairment” that “substantially limits one or more of the major life activities.” See, e.g., 42 U.S.C. §12102(1)(A) and 28 C.F.R. §36.105.

Residents in disadvantaged communities must be given the right to be heard and to choose the method of broadband access (wired or wireless), by providing them with sufficient notice and the power to consent to wired or wireless access, particularly given the proven hazardous nature of wireless technology. Appropriate accommodation must be made for those who are disabled or suffering from wireless radiation. Residents should have veto power over any wireless infrastructure in their neighborhoods or at least those right outside their homes or bedrooms, especially given that insurance companies will not insure for any injuries from wireless radiation.

The perspective of those EMS disabled as stakeholders who are suffering or disabled from wireless radiation is particularly important in establishing digital equity and inclusion, and the EMS disabled should be given a voice. This would ensure that those otherwise suffering or disabled from wireless radiation are given accommodation by (1) being given access to fiber, rather than wireless, to access the Internet for medical attention, education and other uses; (2) being given equal access as everyone else to the Internet and (3) ensuring a far enough distance from wireless technology with minimum setbacks of 500 meters, or any greater amount of setback or relocation of wireless technology that the disabled require to live safely within their homes.

Making accommodation for the EMS disabled is a necessity. To ensure that the EMS disabled are included in digital equity and digital inclusion, the EMS disabled need access to broadband; otherwise, not having these minimal accommodations would totally exclude this EMS disabled population from having public access to the Internet in their home and in anchor institutions. More specific guidelines are delineated by the [Building Biologists](#), an organization whose mission is to help create healthy homes, schools, and workplaces free of toxic hazards, including those posed by electromagnetic radiation.<sup>73</sup>

### **Accommodation in Public Anchor Institutions**

Accommodation for the EMS disabled should be made in public anchor institutions, such as libraries, schools and medical facilities, so that a portion of each such institution would not expose the EMS disabled to wireless radio frequency radiation. Wi-Fi/wireless free zones, e.g., areas in a building that do not have Wi-Fi or other wireless connectivity and are free of any wireless frequency of any kind, including, but not limited to, that generated by cell phone devices or any other type of wireless transmitting or receiving devices such as smart meters. This zone would be designed to accommodate broadband and telecommunications access for the EMS disabled and to provide safe access to all anchor institutions that they use.

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<sup>71</sup> 42 U.S.C. §3601, et seq.

<sup>72</sup> 42 U.S.C. §12101, et seq.

<sup>73</sup> <https://buildingbiologyinstitute.org/>.



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Here are some examples of accommodations needed for the EMS disabled. The EMS disabled need landline corded phones in community anchor institutions (e.g., libraries, schools, medical facilities) and family dwellings. They cannot use or be dependent on cell phones. A portion of each community anchor institution should have accommodation for the EMS disabled so as not to expose them to wireless frequency radiation.

Accommodation for EMS disabled would include creating a Wi-Fi/[wireless free zone](#), which would include a way to terminate all wireless transmitting signals originating from within the zone and attenuate all wireless receiving signals penetrating into the zone. Transmitting signals can be terminated with a combination of a hard wire shut-off, permanent Wi-Fi free software deactivation that does not reset itself or just by using FTTP and cabled modems / routers / computer / telecommunications equipment. Received signals can be lowered with a combination of RF attenuation building materials, equipment and products that reduce the RFR penetrating into the zone. The objective is to create an “as low as reasonably achievable” level of RFR for receiving signals.

All telecommunications access should be provided by telecommunications equipment (e.g., modems or routers) connected only by copper wire, cable or fiber optics. Any connectors for fiber optics and other hard-wired alternatives must be secured and ensure a leak-free connection. The zone would have a means to terminate all wireless transmitting signals originating from within the zone and attenuate all wireless receiving signals penetrating into the zone. Transmitting signals can be terminated with a combination of a hard wire shut-off, permanent Wi-Fi free software deactivation that does not reset itself. Alternatively, telecommunications equipment could simply be permanently connected to fiber optics or cable for an even faster, more secure and healthier experience. Received signals can be lowered with a combination of radio frequency attenuation building materials, equipment and products that reduce the radio frequency penetrating into the zone. The objective is to create an “as low as reasonably achievable” level of radio frequency receiving signals.

The zone could also be “flexible,” by equipping it with an easily accessible and visible “off” switch and robust software that does not permit wireless signals and prohibits these software settings from being automatically overridden or reset. Those needing a connection for their cell phones would simply turn off their Wi-Fi and cellular connections and plug into the hardwired connections that would be made available to them at various locations within the zone, without any attenuation in service and with the possible advantage of even faster and more reliable service without expense to their health.

In order for the EMS disabled to reach these zones, any wireless frequency within these institutions would be easily attenuated by simply placing a “Signal Tamer”<sup>74</sup> over the wireless telecommunications equipment which significantly reduces the amount of wireless frequency emitting from that equipment without affecting wireless connectivity.

Since the EMS disabled cannot use cell phones, they would need landline corded phones in these public anchor institutions. For example, when an EMS disabled person would otherwise be required to notify a medical facility by cell phone that they are arriving for their appointment, an accommodation would simply be a buzzer at the door to announce their arrival.

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<sup>74</sup> See a sample Signal Tamer on Amazon, with photos of how it greatly reduces wireless frequencies while the router continues to work; [https://www.amazon.com/Microwave-Shielding-Headnet-Radiation-Exposure/dp/B07P3J6J9C/ref=sr\\_1\\_3?crd=133JJDZDT48I9&keywords=signal+tamer+router+shield&qid=1652294074&sprefix=signal+tamer%2Caps%2C183&sr=8-3](https://www.amazon.com/Microwave-Shielding-Headnet-Radiation-Exposure/dp/B07P3J6J9C/ref=sr_1_3?crd=133JJDZDT48I9&keywords=signal+tamer+router+shield&qid=1652294074&sprefix=signal+tamer%2Caps%2C183&sr=8-3).

### **Accommodation in Home Dwellings**

“A man’s [or woman’s] home is his [her] castle.” This has been a maxim for centuries and is no less relevant here. Since the proliferation of wireless infrastructure, wireless frequencies have been intruding into people’s homes, without their consent, and harming them. If frequencies were not invisible, the intrusion and harm would rise to the level of the common law crime of assault and battery. Accommodation is required to ensure that those already harmed from wireless frequencies are protected from any further intrusion and harm. Indeed, these frequencies are life threatening for the EMS disabled.<sup>75</sup>

To that end, the EMS disabled require hard wire, either fiber optics, cable or copper wire, to the premises and hard wire, either fiber optics, cable or copper wire, through the premises. The EMS disabled require prior notice of planned nearby facilities, their consent to the placement and there must be a minimum setback of at least 500 meters so that the EMS disabled can live safely within their homes.

In addition, the EMS disabled require access to medical assistance and emergency services in case of any acts of God, access to which, incidentally, may also become interrupted with wireless infrastructure. The EMS disabled should have equal access to broadband -- a necessary service -- in a manner that does not injure them and that does not otherwise put them in harm’s way. They cannot adopt a technology that is injuring them, especially when wireless technology is intruding into their homes from the outside or from within their own homes.

### **Accommodation for Emergencies**

The EMS disabled require hardwired connections in the event of any emergency or natural disaster, such as heavy weather conditions or a tornado. An example of how fiber optics made possible the restoration of service during an emergency is in Chattanooga, TN. In November 2012, a tornado ripped through Chattanooga. Because of the fiber optics installation, the system was able to either prevent or automatically restore service from 23,000 customer outages.<sup>76</sup> The EMS disabled require access to services in such emergencies.

### **Digital discrimination cannot be remedied without digital literacy.**

Digital literacy requires educating the public, businesses, schools, states, municipalities about the important of hardwired connections. Educational materials along with links to experts in this area (such as the [Building Biology Institute](#)) can provide crucial information on how to hardwire equipment, along with the health, environmental, economic, quality of communications, and security reasons for doing so. The digital literacy program should include, e.g., (1) guidance on the safe use of technology at home, school, work, medical facilities, etc;<sup>77</sup> (2) how to use ethernet cords, adaptors for every device in which to

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<sup>75</sup> See the various situations of the EMS disabled provided in this paper.

<sup>76</sup> “Smart Grid Helps Keep Lights Burning,” May 19, 2017 Editorial, Hamilton County Herald, <https://www.hamiltoncountyherald.com/Story.aspx?id=8646&date=5%2F19%2F2017>.

<sup>77</sup> Protecting Babies from EMF <https://ehtrust.org/> and <https://ehtrust.org/?s=baby+safe>; How to Hard-Wire Schools (see, <https://www.techsafeschools.org/>; "Hardwire Options | TechSafe Schools" <https://www.techsafeschools.org/hardwire-options>).

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plug the ethernet cords;<sup>78</sup> (3) how to use a “Signal Tamer” or its equivalent, so as not to cause electrosmog pollution in other people’s spaces (similar to not polluting people’s spaces with second-hand smoke); (4) how distance from any wireless device or infrastructure is their friend; (5) how to protect babies from wireless frequency radiation and (6) how to hard-wire schools so as not to expose children to wireless frequency radiation.

### Historical Context

There is precedent for creating “safe zones” for the disabled. Zones would be created to reduce crime by implementing new principles of housing construction to provide for greater public surveillance rather than constructing areas that were recessed where crimes could more easily occur. This is known as “defensible space” and the architect was Oscar Newman, Director of the Institute of Planning and Housing, New York University. He advised the Department of Justice on creating defensible space. Newman and his colleagues undertook a three-year study on the effects of the physical layout of residential environments on the criminal vulnerability of inhabitants. The project involved both statistical analyses and extensive modifications to the existing plant and grounds of housing projects to test the efficacy of hypotheses. Through the creation of “safe zones,” the security and safety of adjacent streets and neighborhoods benefit through a reduction in crime.

In Missouri a Travel Safe Zone (TSZ) has been implemented to improve highway safety by implementing more clearly defined roadway segments, particularly in areas where the number of fatal or disabling injury crashes exceeds a “predicted safety performance level for comparable roadways,” as stated in Missouri Revised Statutes 304.590.

As a temporary solution to homelessness, the United States Interagency Council on Homelessness (USICH), the only federal agency tasked with preventing and ending homelessness, has coordinated with 19 federal agencies, state and local governments and the private sector to create “safe zones” or “sanctioned encampments.” The goal is to help people stay in a safer and more sanitary environment, without the risk of being arrested or legally cited. Sometimes these settings feature sheds or other structures or provide areas for people to stay in their cars or recreational vehicles. Others simply provide places for people to sleep in their own tents or on mats. Some communities have created these environments as a voluntary option for people that would otherwise live in unsafe situations.

The need for “safe zones” in the wireless-free context are being discussed with regularity among the EMS disabled community and those who attempt to provide services for them. On May 12, 2022, the National Council on Disability (NCD) took testimony, both written and oral, from the EMS disability community. NCD is an independent federal agency charged with advising the President, Congress and other federal agencies regarding policies, programs, practices, and procedures that affect people with disabilities.

### Present-Day Context

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<sup>78</sup> “How to Hardwire a Cell Phone to Ethernet Step by Step,” Environmental Health Trust <https://ehtrust.org/how-to-hardwire-a-cell-phone-to-ethernet-step-by-step/>; “You Can Hard Wire iPhone to the Internet With Ethernet Cable! – Tech Wellness,” <https://techwellness.com/blogs/expertise/hard-wire-connect-phone-tablet-laptop-internet/>; “EMF Medical Conference 2021 Talk: Reduce EMF in Your Home Office,” YouTube <https://www.youtube.com/watch?v=FFFdfAsTks8>].

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To provide some context as to why such accommodations are important, here are just a few examples of people suffering from wireless radiation: a New York police lieutenant,<sup>79</sup> an 81-year old elderly woman who lived in New York,<sup>80</sup> both of whom are referenced in **Stories of the EMS Disabled** in this paper, as well as a Texas resident.<sup>81</sup> The police lieutenant, who was otherwise healthy before exposure to radiation from wireless transmitters placed in close range to his house, caused him to suffer heart arrhythmias and sleep deprivation. He was compelled to evacuate his own home to live elsewhere in a safer environment, while still shouldering the financial burden of a substantial mortgage on his original house.

The 81-year-old elderly woman, after wireless transmitters were placed on the rooftop of her apartment building directly over her ceiling, suffered from debilitating radiation related symptoms, including severe tinnitus, bilateral hearing loss, sleep deprivation, major headaches and persistent nausea and vomiting. She could not find refuge anywhere in her studio apartment, where she has lived for 44 years. In her own words, "It's brutal."

A Texas resident has been seeking accommodation, suffers from life-threatening EMS: swelling of vital organs (face, head and eyes), heart attack, stroke, rashes and loss of skin, extreme fatigue, internal bleeding and breathing problems.

There should be a metric to measure in EMS disabled communities, on the ground (1) the level of electrosmog generated, or that would be potentially generated, from wireless infrastructure (2) the amount of fiber optics deployed, and needed to deploy, to provide accommodation to the EMS disabled communities and (3) the extent of accommodation for those disadvantaged communities with injuries from wireless exposure. These metrics should be accessible and transparent to the public.

### **Adopting Tom Wheeler's "Fiber-First" Policy: Fiber Optics Broadband is a Necessity for Disadvantaged Communities and is the Best Solution to Bridge the Digital Divide**

Digital inclusion and digital equity are important for disadvantaged EMS disabled communities. ***The only way that the promise of diversity and digital equity and digital inclusion can come true for EMS disabled communities is to ensure wired connection to the home and at work and ensure they can achieve exposure avoidance - the only recognized treatment/lifestyle alternative.***

Tom Wheeler, former FCC Chair, advocates a "***fiber first***" policy as he testified in Congress in March 2021.<sup>82</sup> "To prioritize symmetrical 1 gigabit capacity ... is to prioritize a 'fiber first' policy. (Such a policy is consistent with the hybrid fiber-coax (HFC) strategy of cable systems' [DOCSIS 4.0](#) and its 10 Gbps down/6 Gbps up capability.)" Wheeler stated that "[f]iber's benefits are driven by the combination of increased processing power at the ends of the fiber and the ability to handle that increasing capacity... [A]pplying increased

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<sup>79</sup> <https://childrenshealthdefense.org/wp-content/uploads/otard-amicus.pdf>.

<sup>80</sup> Id.

<sup>81</sup> <http://www.wirelesswatchblog.org/wp-content/uploads/2022/03/Statement-of-Physical-Disabilities-1.pdf>.

<sup>82</sup> Tom Wheeler's Testimony to Congress, [https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/Witness%20Testimony\\_Wheeler\\_FC\\_2021.03.22.pdf](https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/Witness%20Testimony_Wheeler_FC_2021.03.22.pdf).

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processing to the data flowing through a conduit that itself has increasing capacity is the definition of futureproofing.”

Another factor to consider for purposes of ensure digital equity and broadband inclusion is affordability, capacity and scalability to meet increasing user demands over the local network’s economic life, including performance, speed, low latency, capacity and reliability. Fiber best meets these demands. Wireless is less reliable and less scalable to meet future customer demands and has higher operational expense.<sup>83</sup> As Tom Wheeler testified, wireless should be used only as a last resort.

Fiber broadband would provide access, adoption, affordability, digital equity and digital inclusion.

Fiber optics broadband to and through the premises is a necessity for disadvantaged communities and is the best solution to bridge the digital divide. It provides the best capacity for remote learning for children and students who are part of disadvantaged communities, and more reliable access to medical and other services for the elderly and disabled during emergencies or severe weather when wireless service is more likely to be interrupted or out of service. Fiber would also prevent the exclusion of those disabled or suffering from wireless radiation who cannot be near wireless infrastructure or wireless Internet.

Disadvantaged, unserved, and underserved communities are disproportionately affected by lack of, or insufficient access to, broadband access. Middle mile fiber optics infrastructure has been built in many areas with middle mile fiber running past rural communities without serving them, hence the “digital divide.”

Fiber to and through the premises (FTTP) is the superior service for bridging the digital divide and providing appropriate accommodation for the EMS disabled, so that these communities are not left behind. Former FCC Chair Tom Wheeler called fiber “future proof,” and said that wireless should be used only as a last resort, not a first resort, in his March, 2021 Congressional testimony.<sup>84</sup> Wheeler stated that despite approximately \$40 billion of government subsidies “over the last decade,” those subsidies “have failed to deliver the goal of universal access to high-speed broadband ... because it failed to insist on futureproof technology, ... and focused more on the companies being subsidized than the technology being used or the people who were supposed to be served.”<sup>85</sup>

FTTP will provide the best capacity for remote learning for children and students, particularly those who are already EMS disabled, and more reliable access to medical and other services for the elderly and disabled during emergencies or severe weather when wireless service is more likely to be interrupted. FTTP will also prevent the exclusion of the EMS disabled who cannot be near wireless infrastructure or wireless Internet.

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<sup>83</sup> “To Reduce Network Operating Expenses, Choose FTTH,” Masha Zager, July 2020, <https://www.bbcmag.com/broadband-applications/to-reduce-network-operating-expenses-choose-ftth>.

<sup>84</sup> Tom Wheeler’s Testimony to Congress, [https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/Witness%20Testimony\\_Wheeler\\_FC\\_2021.03.22.pdf](https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/Witness%20Testimony_Wheeler_FC_2021.03.22.pdf).

<sup>85</sup> Id.

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Wheeler’s statements point to the fact that wireless and fiber are not equivalent broadband media – they are not substitutes; wireless is and should be a complement, not the primary access method. Fiber is “futureproof” while wireless is not. A policy paper of the National Institute for Science, Law and Public Policy, “Re-Inventing Wires: The Future of Landlines and Networks”, authored by Timothy Schoechle, PhD, communications technology expert, similarly states that “[f]iber is unmatched in its speed, performance, reliability, etc. ... Wireless is not a substitute for fiber.”<sup>86</sup>

Fiber is more affordable, scalable from symmetrical (upload and download) speeds of 100 Mbps to 1Gbps to 10Gbps, has a longer life span of 25-50 years and is safer and more cybersecure, has lower operational expenses,<sup>87</sup> and is available at more affordable prices. By contrast, wireless typically requires equipment upgrades, constant maintenance and re-investments about every 5 years. An example of fiber deployment, consumers in Hamilton County, TN have multiple service options, which include speeds of up to 1000 Mbps (1 Gbps). Pricing and capacity are scalable and provide for 300 Mbps at \$57.99/month and 1 Gbps at \$67.99, in each instance with symmetrical speeds.<sup>88</sup> Wireless technology is not able to effectively compete with similar high-speed Internet, with the FCC only requiring 25 Mbps download / 3 Mbps upload speeds.<sup>89</sup> <sup>90</sup> The Fiber Broadband Association (FBA) has shown that consumers prefer the symmetrical speeds that fiber provides.<sup>91</sup> As the largest fiber optics trade association in the U.S. states, “If it isn’t fiber, it isn’t broadband.”<sup>92</sup> The FBA also shows the superior technology of fiber in its white paper, “The Market Has Spoken.”<sup>93</sup>

Fiber deployment has also been an economic boon to Hamilton County.<sup>94</sup> A study calculated the realized economic value of fiber optic infrastructure in Hamilton County and the city of Chattanooga, over about a 10-year period from 2011 to March 2020. The economic value exceeded \$2.69 billion and 9,516 jobs over the study period, with the value exceeding the costs of the fiber optic project by over \$2.20 billion, and about 40 percent of all jobs created. It found that about 52% of the value of the fiber infrastructure was reflected in local economic development – “over \$1.4 billion in new investments, startup funding, real

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<sup>86</sup> “Reinventing Wires: The Future of Landlines and Networks,” National Institute for Science, Law and Public Policy, authored by Timothy Schoechle, PhD; <https://electromagnetichealth.org/wp-content/uploads/2018/02/ReInventing-Wires-1-25-18.pdf>.

<sup>87</sup> <https://optics.fiberbroadband.org/Full-Article/reduce-network-operating-expenses-choose-fftth>.

<sup>88</sup> <https://bestneighborhood.org/tv-and-internet-hamilton-county-tn/>.

<sup>89</sup> <https://www.allconnect.com/blog/internet-speed-classifications-what-is-fast-internet>.

<sup>90</sup> <https://www.fcc.gov/reports-research/reports/broadband-progress-reports/2018-broadband-deployment-report>.

<sup>91</sup> [https://www.broadbandworldnews.com/document.asp?doc\\_id=773546](https://www.broadbandworldnews.com/document.asp?doc_id=773546).

<sup>92</sup> <https://s3.amazonaws.com/files.fiberbroadband.org/download/3555.4237?AWSAccessKeyId=AKIAIZGD7FMLIYLBZNI&Expires=1650065068&Signature=CfFGHmOkZaAovAfuGmXXs2hDpKo%3D>.

<sup>93</sup> <https://www.fiberbroadband.org/p/cm/ld/fid=978>.

<sup>94</sup> “Ten Years of Fiber Optic and Smart Grid Infrastructure in Hamilton County, Tennessee,” Bento J. Lobo, Ph.D., CFA First Tennessee Bank Distinguished Professor of Finance, The University of Tennessee at Chattanooga, August 31, 2020, [https://www.researchgate.net/publication/352221978\\_Ten\\_Years\\_of\\_Fiber\\_Optic\\_and\\_Smart\\_Grid\\_Infrastructure\\_in\\_Hamilton\\_County\\_Tennessee](https://www.researchgate.net/publication/352221978_Ten_Years_of_Fiber_Optic_and_Smart_Grid_Infrastructure_in_Hamilton_County_Tennessee).

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estate development and payments-in-lieu of taxes.” “Each county resident is estimated to have benefited by about \$646 per year due to the incremental value generated by the fiber optic infrastructure.”

Another example of substantial long term cost savings using fiber broadband is Chanute, KS which “operates a 10 Gbps fiber-optic broadband ring.” This fiber network “connects schools and other community anchor institutions with gigabit networks ... The network generates \$600,000 per year for Chanute’s Electric Utility ... This ... has demonstrated that communities can meet their own telecommunications needs with smart public investments — they did not wait for national corporations to solve their problems.” City Manager J.D. Lester refers to municipal broadband as ‘the great equalizer for Rural America’ ...”<sup>95</sup>

An example of a rural area which achieved access, digital equity and digital inclusion is rural eastern Kentucky. Peoples Rural Telephone Cooperative (PRTC) completed a 100% all fiber-to-the-premises buildout in 2014, a Gigabit-capable internet available to every home and business in the counties of Jackson and Owsley, Kentucky.<sup>96</sup>

In light of Tom Wheeler’s “fiber-first” policy and the enormous advantage fiber provides over wireless, the FCC should consider the recommendations in the policy paper “Reinventing Wires ...” of the National Institute for Science, Law and Public Policy (NISLAPP), in what former President of Microsoft Canada, Frank Clegg, calls “a reasonable voice for our turbulent world.”<sup>97</sup>

NISLAPP explains that, first, the public needs publicly-owned and controlled wired infrastructure that is inherently more future-proof, more reliable, more sustainable, more energy efficient, safer, and more essential to many other services. Wireless networks and services, compared to wired access, are inherently more complex, more costly, more unstable (subject to frequent revision and “upgrades”), and more constrained in what they can deliver.

Secondly, NISLAPP recommends preserving, renewing, or expanding the use of existing (or new) copper wiring (and rights-of-way). Thirdly, there should be a policy of resorting to wireless access only at endpoints, **primarily for things that move**, or in situations where wiring is not possible or practical—but not relying on wireless for basic access.

These recommendations are preferable to reliance on privatized or semi-privatized (e.g public-private partnerships) providers for Internet access, whether wired or wireless. Rather, the discussion should shift toward Internet as a basic public utility and a re-commitment to the Internet’s founding principles of open networks, interoperability and equal access to all:

- High-speed optical fiber-based Internet access networks should be available to every community and every member with a direct hard-wired connection to every household and workplace.

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<sup>95</sup> In Kansas, Rural Chanute Built Its Own Gigabit Fiber and Wireless Network,” Christopher Mitchell 10-2-21, <https://ilsr.org/chanute-rural-gigabit/>.

<sup>96</sup> <https://www.soar-ky.org/prtc/>.

<sup>97</sup> “Re-inventing Wires: The Future of Landlines and Networks,” by Timothy Schoechle, PhD, Timothy Schoechle, PhD, Senior Research Fellow, National Institute for Science, Law & Public Policy (NISLAPP), <https://gettingsmarteraboutthesmartgrid.org/pdf/Wires.pdf>.

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- The Internet has become a basic public good vital to our society (a public commons), and it should be available to all in a safe, reliable, fair, affordable, and energy-efficient manner.
- Wireless access service is not an adequate substitute for wires and should be considered only as an adjunct or complement to wired access service.
- Thus, in principle, community networks should be financed, constructed, and managed in a manner analogous to such public infrastructure as municipal water systems, sewers, streets, or libraries.

## CONCLUSION

The disadvantaged communities include the EMS disabled who need accommodation.

Therefore, a major metric to measure compliance with President Biden’s Justice40 Initiative, is measurement of EMS disadvantaged communities, on the ground: (1) the level of electrosmog generated, or that would be potentially generated, from wireless infrastructure (2) the amount of fiber optics deployed, and needed to deploy, to provide accommodation to the EMS disabled communities and to achieve the Initiative’s goal of clean energy for these disadvantaged communities and (3) the extent of accommodation for those disadvantaged communities with injuries from wireless exposure. Fiber optics deployment for FTTP would ensure the best connectivity, digital inclusion, environmental equity, as well as safety for the environment and for the health of the communities. These metrics would help “to deliver at least 40 percent of the overall benefits from Federal investments in climate and clean energy to disadvantaged communities.”

As Chair Brenda Mallory of the White House Council on Environmental Quality has stated, the goal to “help Federal agencies ensure that the benefits of the nation’s climate, clean energy, and environmental programs are finally reaching the communities that have been left out and left behind for far too long.”<sup>98</sup> The EMS disabled “have been left out and left behind for far too long.” Now with the Justice40 Initiative, the FCC has the opportunity to rectify this inequality for the disadvantaged communities of the EMS disabled. It can serve a significant role by prioritizing fiber as the access method of choice, and encouraging the development of RF-free zones in public areas and near residences so the EMS disabled can once again have a safe home environment and rejoin the rest of society.

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<sup>98</sup> <https://www.whitehouse.gov/ceq/news-updates/2022/02/18/ceq-publishes-draft-climate-and-economic-justice-screening-tool-key-component-in-the-implementation-of-president-bidens-justice40-initiative/>.



## **Addendum: Stories of The EMS Disabled**

### **In Their Own Words**

#### **GEORGE S., NEW YORK CITY**

George S. was a healthy New York/New Jersey Port Authority Police Lieutenant with a good job, good health, and a three-story house in Astoria, Queens in New York City. George purchased the home in 2013 and refurbished it. He moved in a year later and in 2020 his younger sister, 31 years old, moved into the third story of the house. George was on the second floor. He had tenants on the first floor.

In September 2020, George returned from Europe where his father just had a quadruple bypass. He had been caring for him for five weeks. In his front yard was a cell tower. He doesn't know if you'd call it a small cell or a macro tower. He doesn't really know the difference. But it was a 35' to 40' tall tower with a canister on top that appeared to be omnidirectional and two antennas facing in opposite directions but seeming to cover almost 360° at a slightly lower level than the canister itself. George's front yard lined up perfectly with the 1000-unit apartment building across the street which was probably the target of the wireless carrier. He had received no notice, no warning. He simply came back to find what appeared to be a multidirectional antenna on a big pole had placed atop the old utility pole that was a fixture in the easement of his yard.

George's sister had just completed seven months of chemotherapy at Sloan-Kettering when the antenna was installed. She had been diagnosed with non-Hodgkin's Lymphoma, a type of cancer that affects the lymphatic system.

Even though her chemotherapy was behind her, George's sister started experiencing headaches and nausea after the cell tower was installed. She told her doctor about the new tower and the doctor cautioned that RF radiation could aggravate her condition. The oncologist advised that it was essential she avoid all radiation including RF (wireless) radiation during treatment.

George, for the first time in his life, started suffering from heart arrhythmias and sleep deprivation. He went to a cardiologist for an evaluation and was fitted with a halter containing a cardiac monitor to wear for two weeks. The results showed multiple arrhythmias. They were PVCs or premature ventricular contractions. These are the most common of the irregular heart rhythms. The heartbeat is created by electrical signals that originate in cells in the heart's upper chamber, the right atrium. That electrical signal moves down through the heart to the lower chambers where the electrical current arrives in the ventricles, causing them to contract and pump oxygen-rich blood out to the body. For George this meant that a critical heartbeat came too early, disrupting the heart's normal rhythm.

The sudden onset and the severity of the arrhythmia caused George's new cardiologist to suggest an invasive procedure where they placed a catheter through an artery into George's heart. The doctor tried to replicate the arrhythmia to see if they could perform a cardiac ablation to stop the electrical charge between heart chambers. Ablation is a procedure in a small area of the heart tissue that is causing rapid and irregular heartbeats. Yet the doctor, to his surprise, was not able to replicate the arrhythmia.

George did not have arrhythmia when outside of his home environment, only when in his house. The arrhythmia returned when George returned from the hospital procedure to his home. The doctor then did a second procedure to perform a cardiac ablation, but again, they found nothing wrong.

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Increasingly, the level of radiation in the home was beginning to look like the culprit. In addition to the never before experienced cardiac arrhythmia, George had experienced headaches, lack of mental clarity, and insomnia that had come out of nowhere, noticeable when he first returned from caring for his father in September 2020. George had never even considered that cell towers could trigger symptoms. He used the technology and he liked it. He wasn't prone to conspiracy theories. He was a Police Lieutenant. and he relied on facts.

George decided to try an experiment. Even though his girlfriend rented one room in NYC, he started staying over there just to see if he slept better. There was a noticeable difference in all his symptoms. The symptoms simply did not occur away from home. In part to address his symptoms and part to protect his sister, George and his sister moved out of the house. He was living in a rented home, all the while paying a significant mortgage on the home he owned – the one with the cell tower in the front yard. George had bought the house across from the East River with every bit of savings he had from over 20 years of extremely hard work. He redid the house from top to bottom. He created four apartments in one three-story home and had a plan mapped out for his financial future. Then the cell tower came.

"They should have safe zones," explains George. "They should have a buffer zone from houses. What's fair is fair. We should have input on where these towers go. I came back to find my sister sicker than when I had left, and everybody I called at the city was either abrasive or they didn't have any information or they didn't know anything. The lack of empathy and the lack of control – like all of our freedoms are taken away with these towers – is like nothing I've ever seen before. It doesn't make any sense."

"I've been a public servant all my life. I was a full paramedic at 19 – the youngest in New York City. A police officer at 20. I worked my way up doing every beat that you can do," says George, and then he pauses. Silence follows, and there's good reason for that somber silence as he reflects. George and his partner were working near the World Trade Center on 9/11. They ran to help and in tandem they pulled people out. George would pull a victim out and as he pulled the person to safety, his partner would run back in. Then they would switch. It was during one of those exchanges, as George was pulling another victim to safety, that his partner ran back in and then the tower collapsed. George's partner was later found in the rubble.

"I was finally a police lieutenant in charge of 300 people," George continues, "and suddenly they put this tower in my front yard and I couldn't sleep at night. I wasn't a great boss at that point because I was so sleep deprived. My heart was racing at night, and I was one of these people who believed that there was no harm from these towers. I use the technology. I like the technology. But you can't put these towers in people's yards with no notice, no negotiation, no room for compromise. Why not put the tower in the flat surface parking lot by the 1000-unit apartment complex the carrier was trying to service? I guess they liked the angle from my front yard because they probably made more money. It was a more direct line of radiation at more apartments. But I paid the price."

"I am \$250,000 in debt because I took my entire life savings and put it into the house and then spent years fixing the house up and was finally able to rent out the extra apartments." George states the facts matter-of-factly, not defeated, yet clearly not knowing how he can dig out of this hole. He has an unmarketable home, and his entire life savings is serving as a base station for a wireless carrier. "I was in Europe taking care of our dad and I came home to find my sister, who was finally done with her cancer treatment, was incredibly ill for no apparent reason. Her bedroom window was parallel with the tower. The doctor said if we stayed, her cancer could come back.

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George S concludes "The FCC is betraying their responsibility...The FCC is not doing their job. If I'm not doing my job, I get indicted. If the FCC doesn't do their job, nothing happens to them. Aren't they supposed to be protecting us? So what happens to them? Nothing."

### **LILY MARIE, HELL'S KITCHEN, NYC**

Lily Marie was an 81-year-old actress, model, writer, member of the Screen Actors Guild living on the top floor of a high-rise in the West Side of Midtown Manhattan in New York City, *also known as Hell's Kitchen*. Lily Marie had been working hard since she was 17, putting herself through college working as a secretary and waitress. The breakthrough in acting in New York City came after college. She doesn't consider herself a celebrity though others would. She's walked the runway in the top designer's clothes. Her favorite was Oscar de la Renta. She sang, "did the soaps," television shows and has a list of movie credits that include The French Connection, Stiletto, A Lovely Way to Die with Kirk Douglas, and Reflections in a Golden Eye with Elizabeth Taylor and Marlon Brando. For 45 years, Lily Marie loved her apartment at the top of a NYC high-rise, and her view of the city that had brought her opportunity and an exciting career of hard work and tremendous joy.

Everything in her world changed on September 30, 2020. That was the night wireless transmitters were activated after installation on the rooftop right above Lily Marie's apartment. There was no notification to the residents. Five antennas simply appeared on the rooftop, three of them directly above her apartment. She recalls she instantly felt different, with sudden, severe headaches and a high-pitched constant tinnitus, what Lily Marie refers to as "screaming in her ears." It was worse at night. She would lie in bed, exhausted yet unable to sleep, experiencing heart palpitations, IBS (irritable bowel syndrome), diarrhea, nausea, dizziness, a feeling of electrical sensation running from her neck to her head, forgetfulness, and general cognitive dysfunction, or "brain fog." As the days went on, her symptoms worsened. She developed bilateral hearing loss, and persistent nausea and vomiting. Lily Marie experienced these symptoms 24/7 for 26 months. In her own words: "It's brutal."

Lily Marie had to evacuate her apartment of 45 years and move to a more rural setting to escape from the transmitters above her apartment, and increasingly throughout New York City. Unfortunately, there are now wireless transmitters outside of her apartment in a more rural setting that are causing similar issues, although not as severe as the 26 months of hell she experienced in the penthouse floor overlooking New York City. Lily Marie's EMS disability remains a constant. She wears protective clothing when possible and it seems to help. When explaining this syndrome of neurological symptoms she experiences to a new doctor in her new setting, that physician referred to the described symptoms and the attributions to cell towers as "a theory."

Lily Marie told the dismissive doctor he was dismissed. She now has a new physician who is aware of the neurological symptoms that can result from radiofrequency electromagnetic radiation exposure (RF-EMF). But this physician is at a loss about how to help Lily Marie.

The new managers in her current location will not making any accommodation for her EMS disability, as they know nothing about the condition. They are kind, but without the appropriate instruction for how to minimize overall Wi-Fi exposure in the new assisted living facility, they are at a loss as to how they can help. Lily Marie would love to have hard wiring in the room she now rents at an assisted living facility so she could plug in a wired computer. She wants to communicate with her friends and those she worked in the business with for decades.

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The woman who used to strut Oscar de la Renta down the runway now wraps her head in a protective fabric ski cap to stop the throbbing pain and lessen the ringing in her ears.

### **ROGER M., LOVELAND, COLORADO**

“It was a Friday afternoon when we were noticed. All the notice said was that Verizon was coming to install several small antennae on the rooftop. The workmen arrived on Monday. They came every day from 7 AM to 7 PM and worked for three or four weeks. It was more than a few antennae. They even had a crane to lift the concealment wall that shielded the wireless equipment they put literally above my head,” recalls Richard M.

Richard lived on the top floor of ArtSpace, a not-for-profit four-story building. The residents were all artists of some kind. The subsidized housing provided a place to live and work at one’s craft in Loveland, Colorado. A musician and composer, Roger M. had played freelance gigs along the Front Range for years. A versatile musician, Roger was known as someone who was available for touring groups who needed a backup player. He played for theater productions, cruise ships and was frequently found at his piano, writing jazz. His top floor apartment in Loveland doubled as home and studio, he had steady work performing and life was good.

Roger went from living his dream to living in his car to just trying to survive.

He is torn when apportioning blame. Roger doesn’t know whether ArtSpace made a deal to lease out the rooftop of his building without seriously investigating the possible health consequences for the residents. Yet without doubt, he feels Verizon has told the residents too many carefully crafted lies to be doing anything other than purposeful concealment. And he is angry at the FCC for what Roger refers to as “gaslighting and failing to protect the public.”

In the 1944 film *Gaslight* starring Ingrid Bergman, a husband uses deceit to convince his wife that she is delusional so he can steal from her. The term is commonly used to describe someone being manipulated into questioning their own reality, usually so it advantages the person or entity doing the manipulating.

“Verizon tells you that they are operating at just 2% of what the FCC allows,” explains Roger, “at least that’s what the first couple of flyers said. They had an apartment building full of sick residents and they were trying to tell us that we were fools to be concerned.

“They throw your life into chaos,” Roger continues, “and amidst that chaos they deny any harm is coming from the tower. So when they told us what we were being exposed to was just a fraction of what the FCC allowed, I called the FCC. They told me the base station was well within the regulatory limits and then they quickly shifted to their default position: ‘The FCC is not a health and safety agency.’

“They are playing us for fools – *both* Verizon and the FCC,” says Roger, with special emphasis on the word both. “It’s all smoke and mirrors. Verizon’s lies wouldn’t work without the FCC’s and vice versa. That Verizon base station on our rooftop may be emitting 2% of what the FCC allows, but how can the FCC allow a level so high that at 2% every single person who lived in that ArtSpace building was feeling the effects either neurologically or they were sick all the time.

“My position is that the FCC should just stop talking because if their default position is they aren’t a health and safety agency, what are they doing regulating the amount of radiation everybody in this country

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receives? They say they rely on other agencies, like the FDA. So you go to the FDA website and they say the same thing the FCC does. They say 'no known adverse health effects.'

"It's just a scam," surmises Roger. "This is one big shell game being played by a federal agency and a wireless carrier. They are joining together to gaslight anybody who gets sick."

Verizon had begun construction on the rooftop in January 2021. The residents think the tower was activated around April but they were unsure. Many were not feeling well but were trying to write their symptoms off to other things. No one wants to lose their home. But in August it became undeniable to all that the base station on the roof was a problem. Everybody was feeling sick or suffering debilitating headaches and insomnia. By October, Roger was paying rent to house his piano and other instruments and sleeping in his car.

Yet this was Colorado and when winter came, Roger was forced to go into his savings to pay for a hotel. He was unable to find alternative housing. The waiting list for subsidized housing was years long, and he couldn't find an apartment he could afford. The man who could fit in anywhere as a musician suddenly had no place to go. He was still paying rent at ArtSpace and the hotels throughout the area were not cheap. He couldn't get out of his lease until finally, in an act of desperation or perhaps inspiration, Roger bought a meter that allowed him to do RF radiation measurements in his apartment. He videotaped the meter walking down the hallway toward his apartment. The readings were high but suddenly as he opened the apartment door, the meter jumped in multiples of 100  $\mu\text{W}$  per meter squared. Then Roger walked to various well-known places in Loveland, including coffee shops where people could come and use their laptops. Nothing came close to approximating the readings in Roger's apartment. He sent the video to the management company and ArtSpace. They let him out of his lease.

Roger explains that almost everyone moved out or at least they wanted to, but the problem for all was the rents which had skyrocketed since the pandemic, and there was really no place to go. Living in subsidized housing so they could do their craft – whether it was music or painting or pottery, had been appealing. In the beginning the building had quickly filled with artist-residents. Roger had been the first to move in and that was 2015. This was his community. This was everyone's community within ArtSpace. Now, as soon as they could get out of their leases, residents were leaving for cars, relative's homes, and the few able to afford other apartments.

"I don't know a person in the whole building who wasn't affected," recalls Roger. "Those of us closer to the rooftop probably got hit the hardest. I was like a zombie. It was the lack of sleep, I'm sure, but it was the lack of clarity of thought that went above and beyond sleep deprivation.

"Friends would come over and I wouldn't say anything because I didn't want to predispose them to thinking they didn't feel well," he explains. "But every single person who came over to visit would complain of a headache and body chills. I knew it wasn't some sort of 'mass hysteria' for those of us who lived in the building. It affected every single one of our friends.

"People stopped calling for gigs because I wasn't working, I couldn't perform, I couldn't compose, I couldn't think. I was just trying to survive," Roger states, a tired bluntness in his voice.

"I didn't move out capriciously. Who wants to leave their home, their personal possessions, and for me, my love and my profession – music."

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The symptoms of electrosensitivity have not left Roger, even though he improved when he moved out of ArtSpace. The brain fog is still with him, he is without savings, and without income. After sharing his story, Roger pauses and then shares one final thought.

“What I want to say to Verizon and the FCC is ‘Quit lying and quit killing us.’”

### **THE GILARDI FAMILY, PITTSFIELD MASSACHUSETTS**

It was Earth Day, 2021. Based on the children’s classic *Alexander and the Terrible, Horrible, No Good, Very Bad Day*, Amelia Gilardi rewrote and retitled, for purposes of Earth Day, the story based on a challenge faced by her family and her community in which the environment plays a central role. “5G Earth Day Countdown: Children — Amelia’s Terrible, Horrible, No Good, Very Bad Cell Tower Days” was an ode to her community and in so many ways, it spoke to a much broader audience.

*My name is Amelia and I am 13 years old.*

*A Verizon cell tower blindsided my Pittsfield, Massachusetts neighborhood and made us sick. This is my story.*

*Last March, we were sent home from school due to the pandemic. The ice skating show that we had worked so hard practicing for was canceled. Auditions for my school musical were cancelled. My weekend nature program was cancelled. Everything was cancelled.*

*Everything except the construction happening in my neighborhood.*

*Trucks were rolling by our house – big ones, flatbed ones, trucks carrying other trucks. When trying to clear the corner between Plumb and Alma Street, the weight of the truck was so much it crushed the water main beneath the road. We couldn’t get the car out past the repair crew and went without water for the day. No one knew why.*

*Because we were home with no plan to return to school, we tried to keep busy. For Christmas, my sister and I got mountain bikes and we went riding up our street like we always did. But this time, at the top of the street, we saw parked trucks and the cleared trees. Where there was forest that was once part of the Herman Melville Farm, a land called “Arrowhead” after Melville having found them in the fields, was now a big, open clearing.*

*Trees by the dozens had been chopped down and were lying on the ground. Some had been wood chipped and spread from Alma Street to the clearing. None of the neighbors waking their dogs or out for a jog or pushing their children in strollers had any idea why.*

*Mom called our City Councilor and he didn’t know why. He said he would call the Department of Public Works and put some calls into the city to find out. When he got back to mom, he said no one knew anything about the construction. Mom came out for a walk with us and took a photo of the trucks. She called the construction company and asked what they were doing. That is when we learned it was a cell tower.*

Amelia Gilardi is an amazing 13-year-old playing the leading teen role in a theater she never tried out for, with some adults in roles she never dreamed she would witness.

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Amelia Gilardi is Courtney Gilardi's daughter. That explains a lot.

The startling news that a 115-foot tall, 12-antenna cell tower was being constructed in their neighborhood in the section of Pittsfield historically known as Shacktown concerned Amelia's mother, Courtney. Construction had already begun. Twenty of the 22 neighbors had not been noticed as was required by the local zoning ordinance, and none of them had been noticed within the period of time allotted for an appeal of permit approval. In the ensuing months Courtney Gilardi and her neighbors struggled to understand how this could happen without notice in their community.

After the tower was activated symptoms were, for most, immediate. Courtney dove into the research. She contacted experts around the country, in Canada and in Europe. Verizon did not inform the residents when the tower was turned on. They knew because their bodies told them. They stopped sleeping through the night if they could get to sleep at all. They were plagued with headaches, vertigo, nausea, brain fog, skin rashes and within the next 18 months there would be two diagnoses of cancer and one recurrence of cancer. Family pets would die, and even the moles did not return to family gardens as the ground started to thaw after winter had passed. Bees and other pollinators began to disappear.

Courtney Gilardi and her husband have two girls, one Courtney refers to as "my little one" for the sake of privacy, and 13-year-old Amelia who has accompanied her mother to every Pittsfield City Council and Board of Health meeting, speaking publicly each time, imploring them month after month to help them find some relief from the injurious Verizon tower. Many of the neighbors joined the fight but few made it their mission to contact experts internationally and invite them to virtual town halls to educate residents and community leaders about the health impacts associated with RF (wireless) radiation.

What sets this story apart what residents all over the country are starting to experience an intrusion of cell towers into residential neighborhoods and on school grounds at an alarming pace is the fact the Gilardis are fighting back. The relentless drumbeat by Courtney and Amelia began to include more neighbors as the months went by. Under longstanding Massachusetts law Health Boards have strong and extensive authority to require that injurious commercial operation be eliminated, so the Gilardis asked the Board to step in and provide relief. On February 2, 2022 the Pittsfield, Massachusetts Board of Health unanimously voted to require that Verizon and the landowner to appear and show cause why the Board should not issue a cease and desist order. The Board took almost two years reviewing the extensive scientific, medical and personal evidence and expressly found that the cluster of illnesses was caused by the tower's operation. The Board encouraged Verizon to work with the city and residents to reduce the impact on these families but indicated Verizon would be required to cease operations if it persisted in its position that the city was powerless to protect Pittsfield residents from harm. This is the first known cease-and-desist by a state/local Board of Health against a wireless carrier in the United States.

Verizon refused to appear or negotiate. It responded to the Board of Health's issuance of the cease-and-desist with a [federal lawsuit](#), filed May 10, 2022, in a Massachusetts U.S. District Court. The carrier asked the court to rule that the Board is indeed powerless to protect Pittsfield residents even after an expert medical agency finding of both injury and causation. Verizon claims that state and local health authorities are completely preempted by [47 U.S.C. §332\(c\)\(7\)\(B\)\(iii\)](#), which prohibits state and local [zoning authorities](#), from "regulat[ing] the placement, construction, and modification of [personal wireless service facilities](#) on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the [Commission's](#) regulations concerning such emissions." The tower looming over the Shacktown section of Pittsfield was tested and found to be within the regulatory limits set by the FCC, so Verizon contends it can operate even if the resultant emissions lead to severe injury or even death and in the face of traditional state police powers.

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Courtney Gilardi has been working tirelessly to educate her own community, and simultaneously educating communities across the country, that this practice of wireless carriers bringing their cell towers into residential areas and next to schools has to stop. The fact that this tower is at least arguably within regulatory limits set by the FCC may make Verizon feel they have the upper hand, but it is clearly making a very wide swath of neighbors in the vicinity of the tower sick.

“My little one had headaches, dizziness, and felt like her head was ‘buzzy,’ explains Courtney. “She also suffered from the sensation that her skin was crawling and was itchy when she was in her room, which was on the side of the house closest to the cell tower. She complained of stomach aches and a once voracious eater and a like-clockwork sleeper could do neither. Since the tower was activated she has lost her appetite for food and complained she couldn’t fall asleep. Those were never issues in the past. She also suffered with horrible nightmares. She would toss and turn and scream out. I only realized how often she did this after we moved to the cottage and she slept peacefully through the night.”

The cottage Courtney is referring to is the unheated cottage they have rented so they can escape their home which they hope and pray they can return to, but much of that depends on a federal judge’s decision. The cottage does not have hot water so Courtney and her family return to their “tower home” for a hot shower, but it is a place they can sleep through the night.

“When we would spend too much time at home, my little one would ask to leave and go to the cottage,” explains Courtney, describing how they would return to the house to get clothes, take a hot shower, and be with their toys and amenities they enjoyed and never contemplated leaving until Verizon became their unwelcome neighbor.

“She would say, “I’m ready now” and we knew despite mentally wanting to stay in her own room with her toys, ‘lovies’, fort, books and the only home she had ever known, that physically she knew her body felt better spending time in a rundown cottage where the only thing she had was a mattress on the floor and many mice for company.

At our home by the tower, she would lay down on the kitchen bench with her legs curled up to her stomach with red, puffy eyes, looking miserable, sleep deprived and not feeling herself. She would be so nauseous that she missed school, which led to her losing confidence as she felt she was falling behind in her studies,” describes the mom of two. “Despite being one of the top students in the class, she felt like she had missed so much and felt ill so often and felt that reflected in her work, that she chose to not take the 5th grade MCAS testing.”

Courtney pauses for a moment as she describes what her “little one” has gone through, and then continues. “One day, within 10 minutes of going to school, she vomited into her face mask. It wasn’t the first time it would happen. She would sleep with a bucket besides her bed and both her dad and I would take turns holding her hair back.

“Amelia, at our first in person Board of Health meeting, shared what our routine was like. She reminded me that we needed to ‘show’ not ‘tell’ what life by the tower was like.” So, with her mother by her side, 13-year-old Amelia Gilardi sat behind the table testifying with her mom showing the various medications Amelia now takes, and the pan she would keep at the side of her bed when the waves of nausea were intense and sudden.



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“Amelia would get dizzy. She is my ice skater and gymnast with great balance, and I would watch her walk into walls,” describes Courtney. “Sometimes she would vomit in the middle of the night and I'd hear her little voice besides me in the dark by my bedside saying, “Mama, I'm sick. I just threw up in the sink.’

“Sometimes she would get headaches. She would be dizzy. I remember her schooling from home and having missed several days and realizing that I should check in with the school nurse and tell her why. I remember wondering what she would say, and to my surprise, she actually knew about the [cell tower harms] issue and was supportive.”

“For Amelia, sleep had never come easy, but once she fell asleep, she was a sound and solid sleeper. After the tower, that wasn't the case,” Courtney explains, describing the sudden onset symptoms of classic electromagnetic sensitivity. “She not only had a hard time falling asleep and was often still up at midnight. She just couldn't stay asleep. She was up at 1:00 AM, 2:00 AM, 3:00 AM in the morning. She testified at the City Council getting as few as two to three hours of sleep a night. Often around 4:00 AM or 5:00 AM she would fall asleep, only to be woken by the alarm at 6:00 AM. She never felt or looked rested. She had dark circles under her eyes which always looked tired.

“She had headaches and would ask for Tylenol. We hardwired everything and bought her blue light glasses and tried to spend as much time away from home as possible.” Courtney describes trying to juggle their lives and adjust everything, sometimes on a daily basis. Watching her daughters' misery was the hardest part. As she was trying to empower her neighbors she sometimes felt powerless herself. In describing Amelia's struggle, Courtney shares, “Sometimes she would vomit, sometimes she would just retch, and watching that was even worse, because it was like something wanted to come out, but couldn't, and she couldn't get any relief. We tried Tums, papaya enzyme, chamomile, mints, ginger chews and ginger tea and a relaxing lavender spray. We tried everything, but nothing really worked besides distance, which meant leaving our home.”

When Amelia Gilardi wrote her own version of the children's classic about Alexander's horrible day, she ended with the following. The only factual change is that the Health Department has, indeed, sided with the Gilardis against Verizon. Now it's up to a federal judge in a country with increasing numbers of residents extremely unhappy to have cell towers invading their neighborhoods and marking the school grounds at their children's schools.

From Amelia:

### ***The really bad, worst, no good bad part –***

*We learned that we were not the only ones harmed by cell towers. We were put in touch with Noah Davidson's family in Sacramento California. Both their girls, like us, got sick when a 5G tower was placed outside their bedroom window. No one listened to them either.*

*Mom learned about a boy, my age in Canada, also harmed by wireless radiation since he was 5 years old. They made a movie about him and others who were harmed, called Prisoners without Walls. We talked and I learned he liked the same book series. He loved playing video games. He spoke French and liked making videos.*

*We started meeting families from all over with everyday kids, like us, who had been harmed from wireless radiation either from cell towers or mobile devices. Why, if so many people were being hurt from this, was no one helping them?*

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*So the truly bad, no good part is that the science is here but our legislators simply are not responding fast enough. Dr. Paul Heroux, Dr. Martha Herbert, Dr. Magda Havas, Dr. Cindy Russell, Dr. Sharon Goldberg, Theodora Scarato, Cecelia Doucette and many others have tried to educate Pittsfield about these issues. They have been silenced at meeting, and any letters from them or offers to present information or assist with an investigation have fallen on deaf ears.*

*My mom would ground me if I was told not to do something and I kept doing it over and over. I've heard my grandma say, "When we know better, we do better."*

*Big people, we know better. Please, do something. We never thought this could happen to us so please, don't wait until it happens to you.*

*I'm asking everyone who is reading this to **advocate for cell tower setbacks away from schools and homes**. I'm asking everyone to require the FCC standards that fail to protect us from biological harm to be updated. I'm asking you restore my neighborhood to the safe, residential place it was before the tower, and I am asking for each and every person to care about the wireless safety issue.*

*Our people, our pollinators and our planet depend on you.*

*Amelia*