

Letter to FCC - Docket 20-32 - 5G Fund for Rural America

To Federal Communications Commission
RE: Docket 20-32 5G Fund for Rural America
Date: July 25, 2020

From: Cindy Lee Russell, MD

Dear FCC Members:

You are proposing to provide \$9 Billion to telecommunications companies to expand 5G to rural areas through a Universal Service Fund so Americans can “enjoy the same benefits from our increasingly digital economy as their urban counterparts”.

<https://docs.fcc.gov/public/attachments/DOC-363946A1.pdf>

While this seems a laudable goal, I oppose this proposition on several grounds:

- 1) **5G is Untested for Safety.** 5G is a new wireless technology system using a swirling mix of low, mid and high band wireless frequencies in a thicket of cell antennas. This system has not been shown to be safe for humans or the environment. (1) T mobile (mentioned in the report) will be using low frequency bands, however high frequency bands can be added later. Monitoring, testing and health surveys have not been addressed in urban environments for 5G, thus why would we place 5G in sensitive rural and wildlife areas?
- 2) **Agricultural Concerns.** There is real concern about harm to insects exposed to a broad spectrum of wavelengths. Agriculture is sustained by a healthy and diverse environment and especially pollinating insects. We are already seeing a massive die off of insects and a loss of biodiversity worldwide. Could this insect decline be connected to increasing wireless technology from cell towers emitting radiation, considering that animals are extremely sensitive to EMF's?, Could it be a contributing factor in addition to other widespread toxic exposures from pesticides and manufacturing waste? Microwave frequencies are used to kill insects in grain. This is reported to be a heat effect, however resonance effects can increase the lethality at lower temperatures, depending on the frequency. Independent research on types of frequencies animals and insects are sensitive to and what levels would be safe has not been done. Prior to that a 5G moratorium is needed. (29) It is irrational to do otherwise. (3-7)
- 3) **It is an Unnecessary Subsidy.** This is an unnecessary subsidy to telecom, who has been sued for reportedly misusing funds in the past. Telecommunications companies had a plan to place fiberoptic to cities several years ago and was given money to so at the public expense. This did not materialize. They failed in placing fiberoptic for this purpose and then shifted to wireless systems, presumably because they are cheaper to place. (15-16, 30)
- 4) **Digital Divide Solved: Fiberoptic to the Home and to the Farm.** The digital divide will not be solved with this plan. Companies can charge what they wish for their services and those with limited income will not be able to afford it. Where is regulation on industry charges?. Cities prefer to solve the digital divide by installing and operating their own fiberoptic broadband networks, but are barred in several states, by law, from doing so. The best approach would be to give the money to cities to install and control their own municipal cabled/ fiberoptic broadband service to all within their city or county. This would close the digital divide quite

nicely and allow for local control as cities know best what they need. This is being done already in some parts of rural America. Regarding rural internet cooperatives with local investments, a farmer states “This cooperative model could bring high quality Internet access to every farm in the country. It’s time we stop giving billions of dollars to the big telephone companies that have refused to meet local needs. There is a better way, there are better models emerging. We can do this. RS Fiber proves it.”

<https://www.muninetworks.org/reports/rs-fiber-fertile-fields-new-rural-internet-cooperative> (10-14, 31)

- 5) **Rural 5G are longer frequencies.** The frequencies T Mobile (mentioned in the draft) have been purchased through the FCC Spectrum auction and are low band (600 MHz), similar to lower frequencies already used in large macro towers. These are preferred in rural areas as longer wavelengths transmit very long distances, and in addition pass through buildings, humans and animals. Why is it necessary to have a special fund for this? These are regular cell towers and need to be developed and permitted in the same way they have been historically, not with government funds.
- 6) **Benefits of 5G are Overrated and Supply Driven.** The benefits you claim for 5G are manufactured by industry. They are supply driven and do not consider any downside to human health, the environment, or the changes in society (especially children) from overuse of this technology that are seen in urban areas. Some call this “High Tech Dystopia”. (8,9)
- 7) **Copper landlines.** Money needs to be put back into maintaining critical copper landlines that have been the best, most sophisticated and cheapest means of worldwide communication and especially in emergencies. Landlines can save lives. Landlines also provide for internet access albeit slower. This is what we used quite successfully for years before the wireless industry mushroomed. The loss of landlines has been difficult for older persons who are then forced into wireless devices that are more expensive, with poorer quality of voice and with less reliability. (17)
- 8) **Fiber to the Home and to the Farm.** For rural areas that are prone to fire, fiberoptic, cabled networks and land lines are the best means of communication. This was demonstrated in fires in California and elsewhere. (11,17)
- 9) **Fiberoptic is just as fast.** Fiberoptic is as fast or faster than wireless with less energy use. (11)
- 10) **Privacy and Security .** A wired/fiberoptic network is always the most reliable and most secure internet connection for government, business, academic, medical or personal purposes. Fiberoptic needs to be placed for secure and private connections, not wireless. That is why they are used by research labs and healthcare systems. (14)
- 11) **Fiberoptic has to be Built Anyway.** 5G needs to have large backbone of fiberoptic to operate anyway. Best to just build the 5G to stimulate the economy with jobs and without the downsides of 5G. https://www.ciena.com/insights/articles/5G-wireless-needs-fiber-and-lots-of-it_prx.html
- 12) **Do we need 5G?** 5G is advertised as needed for faster downloads. Do we need this when it is largely for movies? Downloading large amounts of data have much higher energy and higher risk to human health.
- 13) **Increased energy consumption..** (18-28)

Respectfully submitted.,

Cindy Russell, MD

References below

References

- 1) We Have No Reason to Believe 5G Is Safe. Oct 17, 2019. Scientific American. <https://blogs.scientificamerican.com/observations/we-have-no-reason-to-believe-5g-is-safe/>
- 2) 5G wireless telecommunications expansion: Public health and environmental implications. (2018) Russell CL. Environ Res. 2018 Apr 11. <https://www.ncbi.nlm.nih.gov/pubmed/29655646>.
- 3) Recent Developments in Applications of Radio Frequency Heating for Improving Safety and Quality of Food Grains and Their Products: A Review. Crit Rev Food Sci Nutr. 2019 Aug 13;1-21. <https://pubmed.ncbi.nlm.nih.gov/31407918/>
- 4) Physical assessments of termites (Termitidae) under 2.45 GHz microwave irradiation. (2020) Yanagawa A et al. Sci Rep. 2020 Mar 23;10(1):5197. <https://pubmed.ncbi.nlm.nih.gov/32251346/>
- 5) Exposure of Insects to Radio-Frequency Electromagnetic Fields from 2 to 120 GHz. (2018) Thielens A et al. Scientific Reports, Article number:3924 (2018). <https://www.nature.com/articles/s41598-018-22271-3>
- 6) Is Electromagnetism one of the causes of the CCD? A work plan for testing this hypothesis. (2017) Marie-Claire Cammaerts. Journal of Behavior. 2 (1):1006. March 28, 2017. <https://www.jscimedcentral.com/Behavior/behavior-2-1006.php>
- 7) Effects of short-term exposure to mobile phone radiofrequency (900 MHz) on the oxidative response and genotoxicity in honey bee larvae. (2017) Villic M et al. *Journal of Apicultural Research*. July 2017. https://www.researchgate.net/publication/318185267_Effects_of_short-term_exposure_to_mobile_phone_radiofrequency_900_MHz_on_the_oxidative_response_and_genotoxicity_in_honey_bee_larvae
- 8) 5G: State of Play in Europe, USA and Asia. In Depth Analysis. April 2020. European Parliament. "As 5G is driven by the telecoms supply industry, and its long tail of component manufacturers, a major campaign is under way to convince governments that the economy and jobs will be strongly stimulated by 5G deployment." [https://www.europarl.europa.eu/RegData/etudes/IDAN/2019/631060/IPOL_IDA\(2019\)631060_EN.pdf?fbclid=IwAR2qjIH4I-kS-gZ6eITDCBSDQHiull298iFkNKCQw6-F9Ns5uyemkLA0bo](https://www.europarl.europa.eu/RegData/etudes/IDAN/2019/631060/IPOL_IDA(2019)631060_EN.pdf?fbclid=IwAR2qjIH4I-kS-gZ6eITDCBSDQHiull298iFkNKCQw6-F9Ns5uyemkLA0bo)
- 9) Screen New Deal: Under Cover of Mass Death, Andrew Cuomo Calls in the Billionaires to Build a High-Tech Dystopia. Naomi Klein. May 8, 2020. <https://theintercept.com/2020/05/08/andrew-cuomo-eric-schmidt-coronavirus-tech-shock-doctrine/>
- 10) How Local Providers Built the Nation's Best Internet Access in Rural North Dakota. May 5, 2020. <https://www.muninetworks.org/reports/edit-report-how-local-providers-built-nations-best-internet-access-rural-north-dakota>

- 11) Reinventing Wires, the Future of landlines and Networks. National Institute for Science law and Public Policy. <https://electromagnetichealth.org/wp-content/uploads/2018/02/ReInventing-Wires-1-25-18.pdf>
- 12) RS Fiber: Fertile Fields for New Rural Internet Cooperative. April 2016. <https://www.muninetworks.org/reports/rs-fiber-fertile-fields-new-rural-internet-cooperative>
- 13) Minnesota Local Governments Advance Super Fast Internet Networks. March 2014. <https://www.muninetworks.org/reports/minnesota-local-governments-advance-super-fast-internet-networks>
- 14) Wired vs Wireless Networking. Nebraska Best Practices. <https://its.unl.edu/bestpractices/wired-vs-wireless-networking>
- 15) The irregulators. The Trail Begins. David Rosen. Jan 17, 2020. <https://www.counterpunch.org/2020/01/17/the-irregulators-vs-fcc-the-trial-begins/>
- 16) 5G Wireless? Short the Stock and Question the “Forward Looking Statements”? <https://medium.com/@kushnickbruce/5g-wireless-short-the-stock-and-question-the-forward-looking-statements-d7cd400afe1a>
- 17) Why cell phones failed in PG&E outages, and how to prevent a repeat. Nov 4, 2019. <https://www.sfchronicle.com/california-wildfires/article/Why-cell-phones-failed-in-PG-E-outages-and-how-14806460.php>
- 18) 4 reasons Cisco’s IoT forecast is right, and 2 why it’s wrong. 2017. NetworkWorld. <https://www.networkworld.com/article/3187891/4-reasons-ciscos-iot-forecast-is-right-and-2-why-its-wrong.html>
- 19) Why Energy Is A Big And Rapidly Growing Problem For Data. Dec 15, 2017. Forbes. <https://www.forbes.com/sites/forbestechcouncil/2017/12/15/why-energy-is-a-big-and-rapidly-growing-problem-for-data-centers/#4ce016f95a30>
- 20) Data Centres Of The World Will Consume 1/5 Of Earth’s Power By 2025. Alarming new research suggests that failure to source renewable energy could make data centres one of the biggest polluters in just seven years. Data Economy. Dec. 12, 2017. <https://data-economy.com/data-centres-world-will-consume-1-5-earths-power-2025/>
- 21) This Is What Happens When Bitcoin Miners Take Over Your Town. April 2018. Politico Magazine. Paul Roberts. <https://www.politico.com/magazine/story/2018/03/09/bitcoin-mining-energy-prices-smalltown-feature-217230>
- 22) Powering the future of small cells and beyond. 2018. Comscope. <https://www.commscope.com/globalassets/digizuite/3154-powering-5g-cell-densification-wp-112370-en.pdf?r=1>
- 23) Assessing ICT global emissions footprint: Trends to 2040 & recommendations. (2018) Journal of Cleaner Production. March 10, 2018. Belkhir. <https://www.sciencedirect.com/science/article/abs/pii/S095965261733233X>
- 24) Bitcoin mining consumes more energy than 159 countries. Nov 27, 2017. CBS News. <https://www.cbsnews.com/news/bitcoin-mining-energy-consumption/>

- 25) 5G's Waveform Is a Battery Vampire. July 24, 2019. IEEE.
<https://spectrum.ieee.org/telecom/wireless/5gs-waveform-is-a-battery-vampire>
- 26) Telco Industry Hopes and Fears: From energy costs to edge computing transformation. April 2019.
2019. https://www.vertiv.com/globalassets/documents/white-papers/451-research-paper/10648_advisory_bw_vertiv_266274_0.pdf
- 27) Climate Crisis: The Unsustainable Use of Online Video. The Shift Project.
2019. <https://theshiftproject.org/wp-content/uploads/2019/07/2019-02.pdf>
- 28) Smart Tech's Carbon Footprint. The Ecologist. April
2020. <https://theecologist.org/2020/apr/30/smart-techs-carbon-footprint>
- 29) The 5G Appeal. <http://www.5gappeal.eu>
- 30) Expose: AT&T California Fiber Optic Scandal: Billions Charged for Broadband that Never Showed Up. August 28, 2017. Bruce Kushnick. Huffington Post. https://www.huffpost.com/entry/expose-att-california-fiber-optic-scandal-billions_b_59a4ce47e4b0b234aead1c7?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlmNvbS8&guce_referrer_sig=AQAAAEoAFEOUVrXyaaB-KoAKDSXURj7pJF9NWrjDMXKbgdsf8QxW5hxeyzhIE4gsKr0HBjVDSsK2QM3S8Jg4JuNs p2oUJc6KENBAwiGAEShcq1Gao1yAFdrQDUu3cbG0gCojeP1ZoE4rjZu6x8LV2ITHlwXX4lu-xu0h IMyNlvcDdfU
- 31) Municipal Broadband Is Roadblocked Or Outlawed In 22 States States without municipal broadband restrictions have lower internet prices on average. May 23, 2020. Broadband Now. <https://broadbandnow.com/report/municipal-broadband-roadblocks/>