

Wire California & Pennsylvanians for Safe Technology

May 19, 2022

Marybel Batjer, President
Liane M. Randolph, Commissioner
Martha Guzman Aceves, Commissioner
Clifford Rechtschaffen, Commissioner
Genevieve Shiroma, Commissioner
Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102-3298

RE: Proceeding 12-12-011, Proposed Decision of Commissioner Shiroma Decision Authorizing Deployment of Drived and Driverless Autonomous Vehicle Passenger Service

Dear President Batjer and Commissioners Randolph, Aceves, Rechtschaffen, and Shiroma:

The California Public Utilities Commission (CPUC) established four goals for its Autonomous Vehicles (AV) programs:

1. Protect passenger safety;
2. Expand the benefits of AV technologies to all Californians, **including people with disabilities.**
3. Improve transportation options for all, particularly for disadvantaged communities and low-income communities;
4. Reduce greenhouse gas emissions.

Unfortunately, in 2022, many Californians suffer from a variety of disabilities. The CPUC cannot consider only the disabilities that the CPUC *perceives* to be most prevalent. Two organizations, *Wire California* (<https://wirecalifornia.org>) and *Pennsylvanians for Safe Technology* (<https://pasafetech.org>) are jointly writing this public comment to inform the CPUC of the rights of Electromagnetic Sensitive (EMS) Californians, who, currently, comprise around 30% of California's population.

This means that the CPUC's AV regulations cannot rubber stamp an additional wireless infrastructure for AVs that would pollute California's streets (and the surrounding areas) with a known toxic pollutant¹ — RF microwave radiation — at signal strength power levels higher than that needed for wireless telecommunications service (from -125 dBm to -85 dBm). That is consistent with the intent of the 1996 Telecommunications Act (1996-TCA), as stated in the 1996-TCA [conference report](#) and the [Act itself](#):

1996-TCA Conference Report

"The conferees also **intend** that the phrase "unreasonably discriminate among providers of functionally equivalent services" will provide localities with the flexibility to treat facilities that create **different visual, aesthetic, or safety concerns** differently to the extent permitted **under generally applicable zoning requirements** even if those facilities provide functionally equivalent services. For example, the conferees **do not intend** that if a State or local government grants a permit in a commercial district, it must also grant a permit for a competitor's **50-foot tower in a residential district.**"

Title 47 U.S. Code §324 – Use of minimum power

"In all circumstances . . . all radio . . . shall use the **minimum amount of power necessary** to carry out the communication desired." (June 19, 1934, ch. 652, title III, § 324, 48 Stat. 1091.)

The "communication desired" in the 1996-TCA is the placing of wireless phone calls.

Several papers in the disability literature discuss the severe problems of EMS disability. See Stein's 2015 conference paper², *Environmental Refugees – Electromagnetic Sensitives in the Digital World – a population deprived of home, work and basic rights*. See also Bevington³, in 2019, who documented the prevalence of EMS and reported that

- about 1% cannot work,
- about 2% have severe symptoms,
- about 5% have moderate symptoms, and
- about 30% have mild symptoms.

Many people with EMS lack safe housing, access to medical care and other essentials that most people take for granted. This means an ever-increasing number of Californians are disabled by exposures to RF microwave radiation from existing wireless infrastructure antennas that provide wireless telecommunications service (phone calls) and wireless information service (broadband data/streaming).

Electromagnetic Sensitivity (EMS) is a disability recognized by the Federal US Access Board. Microwave radiation exposures impair one or more of their life activities – at signal strength power levels that are far below the scientifically unsound FCC RF microwave radiation exposure regulations. Therefore, EMS-disabled Californians need to be accommodated when experiencing EMS symptoms, per the Americans with Disabilities Act.

EMS Californians are organized. We effectively lobbied at the CA State Capitol in 2017 and 2021, achieving vetoes of SB.649 in 2017 and SB.556 in 2021. Each of these bills would have treated as a state matter the decisions over the placement, construction and modification of Wireless Telecommunications Facilities (WTFs) of any size or any "G" in the public rights-of-way. The vetoes of SB.649 and SB.556 mean that such decisions still remain under local municipal control and jurisdiction, as intended by the 1996 Telecommunications Act. **The State of California also recognized Electromagnetic Sensitivity (EMS) as a disability in 2017 and 2021** by providing our group reasonable accommodations under the ADA, allowing us to complete in-person testimony at the bill's hearings in both 2017 and 2021, which is a matter of public record.

Most importantly, **EMS Californians have rights to the quiet enjoyment of California streets** as guaranteed by the California Constitution and the California Supreme Court. Therefore, AVs can only access the streets of California in a way that preserves the quiet enjoyment of streets by all — *including EMS-disabled Californians*. This is why:

California Constitution, Article I Declaration of Rights, Section 1

"All people are by nature free and independent and have **inalienable rights**. Among these are enjoying and defending life and liberty, acquiring, possessing, and **protecting property**, and pursuing and **obtaining safety**, happiness, and **privacy**."

2019 CA Supreme Court Ruling in T-Mobile v San Francisco

"... the City has inherent local police power to determine the appropriate uses of land within its jurisdiction. That power includes the authority to establish aesthetic conditions for land use ... the word 'incommode' means '[t]o give inconvenience to; to give trouble to; to disturb or molest in the quiet enjoyment of something, or in the facility of acquisition.' ... travel is not the sole use of public roads; other uses may be incommoded beyond the obstruction of travel ... For example, lines or equipment **might generate noise, cause negative health consequences, or create safety concerns. All these impacts could disturb public road use or disturb its quiet enjoyment.**"

The CPUC regulations for AVs that would allow yet another ubiquitous source of RF-Microwave radiation to pollute CA streets is a nonstarter, because such regulation would render access to those public streets inaccessible to EMS Californians. Instead, AVs, will need to rely on on-board technology that could operate independently from RF microwave radiation from external wireless infrastructure antennas. AVs like that exist today.

In addition, AVs must shield any internal RF-Microwave radiation from emitting from the vehicle to not ruin the quiet enjoyment of streets on which they are traveling.

Therefore, **back to the drawing board** is where CPUC regulations "Authorizing Deployment of Drivered and Driverless Autonomous Vehicle Passenger Service" must go. **The CPUC has not completed sufficient due diligence with respect to the rights of EMS Californians.**

The CPUC must also recognize that EMS Californians are on **equal footing** with other Californians who have more well-known disabilities. EMS Californians have rights to access their communities without excessive RF microwave radiation exposures. In short, any regulations for Autonomous Vehicles cannot ruin the quiet enjoyment of streets for EMS Californians.

Please also recognize that many EMS Californians are disadvantaged or low income because many cannot work and cannot participate easily in most activities that people typically take for granted.^{4 5 6 7} — a potent equity issue.

When planning for AVs, it is important to use vehicles, technologies and infrastructure that will not incommode or harm EMS Californians. Most people with EMS cannot use a cell phone to obtain a ride or to call in an emergency. AVs with on-board computer vision⁸ can be built instead of AVs that rely on external RF microwave radiation networks.

Furthermore, Wireless is not green, as it contributes significantly to Greenhouse Gas levels. Wireless RF microwave radiation is a poor choice for infrastructure that is in use 24/7 because Wireless antennas require large amounts of electrical power to operate — it takes around 60 times more energy to move the same amount of data wirelessly versus wired via fiber optic or coaxial options.⁹

It is critical to not further disable more of California's population with additional RF microwave radiation to pave the way for AVs. **Indeed, CPUC regulations must be consistent with the intent of Federal Laws**, including, but not limited to the 1996 Telecommunications Act (1996-TCA), the National Environmental Policy Act (NEPA), the Fair Housing Amendments Act (FHAA) the Americans with Disabilities Act (ADA) and the Rehabilitation Act (RA)¹⁰

AVs need to operate at RF Microwave radiation levels that are as low as possible (zero is the best) to provide safe housing for EMS Californians, so they can comfortably and quietly enjoy the streets in their communities. Recommendations from the 2000 ECOLOG Study,¹¹ the EMF Scientist Appeal,¹² the faculty of the EMF Conference¹³ and other experts who study the adverse biological effects of RF microwave radiation must be considered in the CPUC's deliberations.¹⁴

The simple facts are that wireless radio frequency microwave radiation is bioactive and is currently being insufficiently regulated which is causing significant adverse biological harms, as reported in the 11,000+ pages of peer-reviewed, scientific evidence that Environmental Health Trust, Children's Health Defense and other plaintiffs placed in the FCC's public record in the US Court of Appeals DC Cir. Case 20-1025 in 2021. This letter places substantial written evidence by reference (at the following links and in this letter's endnotes) into the CPUC's public record: [Vol-1](#), [Vol-2](#), [Vol-3](#), [Vol-4](#), [Vol-5](#), [Vol-6](#), [Vol-7](#), [Vol-8](#), [Vol-9](#), [Vol-10](#), [Vol-11](#), [Vol-12](#), [Vol-13](#), [Vol-14](#), [Vol-15](#), [Vol-16](#), [Vol-17](#), [Vol-18](#), [Vol-19](#), [Vol-20](#), [Vol-21](#), [Vol-22](#), [Vol-23](#), [Vol-24](#), [Vol-25](#), [Vol-26](#) and [Vol-27](#). Please download and print these pdfs and place them in the CPUC's public record.

In 2021, the US Access Board held a series of webinars¹⁵ followed by a public comment forum on a platform called Ideascale.¹⁶ The webinar series discussed the benefits of AVs for those with disabilities, the final one being sensory disabilities such as vision and hearing disabilities. Most of the comments were from people disabled by electromagnetic sensitivity (EMS).

These comments strongly emphasized the need for the use of "minimum amount of power necessary to carry out the communication desired" because so many have been disabled by the RF microwave radiation power levels of current wireless infrastructure antennas. The comments highlighted the needs for ADA accommodations in many areas such as access to safe housing, to medical facilities, and to public parks and recreation areas. The rising amount of wireless infrastructure that is being installed near their homes and other public places further incommodes their quiet enjoyment of streets and exacerbates their symptoms — impairing one or more of their life activities.

Many commented how dangerous autonomous vehicles and the infrastructure to support the vehicles would be to them. They universally communicated that they could never ride in an AV. We concur.

On the Sensory Disability Commenting Idea Board, 69 comments were from EMS-disabled people, only two from vision-disabled people and zero from hearing-disabled people.

In August, 2021 the Wireless World Irrevocably Changed

On Friday the 13th in 2021, the US Court of Appeals, DC Circuit ruled in Case 20-1025, *Environmental Health Trust et al v. FCC*¹⁷ that the FCC's acted in an "arbitrary and capricious" manner due to "its complete failure to respond to comments concerning environmental harm caused by RF radiation" below the current FCC RF microwave radiation exposure limits. The judges wrote,

"The factual premise — the non-existence of non-thermal biological effects — underlying the current RF guidelines may no longer be accurate."

The Court rebuked the FCC for ignoring scientific evidence documenting significant biological harms at RF microwave radiation power levels that are hundreds of thousands of times lower than the current FCC RF microwave radiation exposure limits. The DC Circuit judges ruled the following in Case 20-1025:

". . . we grant the petitions in part and remand to the Commission to provide a reasoned explanation for its determination that its guidelines adequately protect against harmful effects of exposure to radiofrequency [microwave] radiation. It must, in particular,

- (i) provide a reasoned explanation for its decision to retain its testing procedures for determining whether cell phones and other portable electronic devices comply with its guidelines,
- (ii) address the impacts of RF radiation on children, the health implications of long-term exposure to RF radiation, the ubiquity of wireless devices, and other technological developments that have occurred since the Commission last updated its guidelines, and
- (iii) address the impacts of RF radiation on the environment."

The hazards of wireless RF microwave radiation have been known for many years. As early as 1997, nearly 100 public health experts from Harvard and Boston Universities signed an early consensus document in an attempt to "prevent harmful, public exposure to pulsed microwave transmissions".¹⁸The EMF Scientist Appeal¹⁹ a petition to the UN to protect the public from hazardous RF EMR, has been signed by 255 EMF scientists from 44 nations as of January 14, 2021.

In 2011, the International Agency for Research on Cancer (IARC)²⁰ classified radio frequency microwave radiation, from any source to be a class 2b carcinogen and calls have been made to update this recommendation to a Class 1 (definite) carcinogen.^{21 22}

An American group of experts held the second EMF Medical Conference in 2021 to train physicians and other health care providers in the prevention, diagnosis and treatment of RF microwave radiation illness. The New Hampshire State Commission on 5G also determined RF microwave radiation was hazardous and recommended the use of fiber optic for all broadband.²³

Insurance Companies such as Lloyds of London, AM Best and Swiss Re specifically exclude claims of illness, injury or death from RF microwave radiation in their general liability policies ^{24 25} The Swiss Re Institute in its 2019 SONAR Report on emerging risks described 4G/5G mobile wireless as an "off the leash risk" with significant adverse impacts expected to people and property.

As previously mentioned, sending data wirelessly is not green. According to The Shift Project Report on the Environmental Impact of Information and Communication Technologies 2019,

“The digital transition as it is currently implemented participates to global warming more than it helps prevent it. The need for action is therefore urgent.”²⁶

The report also states that energy consumption for wireless "information services" is soaring to new highs due to increased usage of wireless for gaming, audio and video streaming apps.

The telecommunications industry also acknowledges that RF microwave radiation is a toxic pollutant and a liability for their continued operations. T-Mobile's Premium Handset Protection Insurance Warranty²⁷ states, on pages 11-13, that non-ionizing radiation is considered a pollutant and is excluded from damage. In addition, Verizon's 2020 Annual Report declares,

“Our wireless business faces personal injury and wrongful death lawsuits relating to alleged health effects of wireless phones or radio frequency transmitters. **We may incur significant expenses in defending these lawsuits. In addition, we may be required to pay significant awards or settlements.**”²⁸*[Emphasis added.]*

In closing, everyone involved — EMS Californians, the DC Circuit judges, the policy makers, the wireless industry, the insurance companies and the expert scientists all agree that pulsed, modulated RF microwave radiation is a toxic pollutant. It makes no sense to base AV operations on simply swapping one toxic pollutant (tailpipe exhaust) for another toxic pollutant (the second-hand smoke of RF microwave radiation). **California deserves better.** The CPUC must deliberate on the evidence in their record (including the evidence provided in this comment) and the go back to the drawing board to devise far better regulations for "Authorizing Deployment of Drivered and Driverless Autonomous Vehicle Passenger Service"

Thank you.

Wire America, Sausalito, CA
Pennsylvanians for Safe Technology, Lancaster, PA

Endnotes

1. Bandara, P., Carpenter, DO. Planetary electromagnetic pollution: it's time to assess its impact. Lancet, Vol 2, December 2018. doi:10.1016/S2542-5196(18)30221-3 [↗](#)
2. Stein, Y. Environmental Refugees – Electromagnetic sensitives (EMS) in the digital world – a population deprived of home, work and basic rights. Conference paper, 2015. doi: DOI: 10.13140/2.1.3344.6728 [↗](#)
3. Bevington, M. The prevalence of people with restricted access to work in man-made electromagnetic environments. Journal of Environment and Health, 2019. [↗](#)
4. Foster, S, Wilkins O. Eliminating digital discrimination for the EMS disabled, White Paper. 2022. [↗](#)
5. Genus SJ and Lipp CT. Electromagnetic Sensitivity: Fact or Fiction? doi:10.1016/j.sciototenv.2011.11.11.008 [↗](#)
6. Gibson PR. Chemical and electromagnetic exposures as disability barriers: Environmental Sensitivity. Disability and Society. 2009. [↗](#)
7. Stein, Y et al. Electromagnetic radiation – environmental indicators in our surroundings, Environmental Indicators (2015) [↗](#)
8. <https://bdtechtalks.com/2021/06/28/tesla-computer-vision-autonomous-driving/> [↗](#)

9. <https://ehtrust.org/report-5g-to-increase-energy-consumption-by-61-times/> 
10. GN Docket No. 22-69: In the Matter of Implementing the Infrastructure Investment and Jobs Act: Prevention and Elimination of Digital Discrimination, May 16, 2022, <https://www.fcc.gov/ecfs/search/search-filings/filing/1051759759289> 
11. <https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-issues-proposal-to-authorize-first-deployment-of-driverless-av-passenger-service> 
12. <https://emfscientist.org> 
13. <https://emfconference2021.com> 
14. <https://www.ada.gov/pubs/adastatute08.pdf> 
15. <https://www.access-board.gov/av/> 
16. <https://transportationinnovation.ideascale.com> 
17. Envtl. Health Tr., et al. v. FCC, 9 F.4th 893 (D.C. Cir. 2021). For overview of the case, see <https://ehtrust.org/in-historic-decision-federal-court-finds-fcc-failed-to-explain-why-it-ignored-scientific-evidence-showing-harm-from-wireless-radiation/> 
18. Early Consensus Document. Petition to avert harmful, public exposure to pulsed microwave transmissions. Boston, 1997. <https://pasafetech.org/research> 
19. <https://emfscientist.org> 
20. https://www.iarc.who.int/wp-content/uploads/2018/07/pr208_E.pdf 
21. <https://ehtrust.org/call-for-retraction-jama-skewed-review-on-cell-phone-radio-frequency-radiation/> 
22. 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> 
23. <http://www.gencourt.state.nh.us/statstudcomm/committees/1474/reports/5G%20final%20report.pdf> 
24. <https://www.jrseco.com/lloyds-insurance-company-does-not-cover-health-damage-caused-by-electromagnetic-radiation/> 
25. <https://www.swissre.com/institute/research/sonar/sonar2019.html> 
26. <https://theshiftproject.org/en/article/lean-ict-our-new-report/> 
27. Premium Handset Protection Insurance, <https://www.phoneclaim.com/t-mobile/pdf/New-Ts-and-Cs.pdf> 
28. Verizon Communications, Inc., 2020 Annual Report, Form 10-K, p.17, <https://www.verizon.com/about/sites/default/files/2020-Annual-Report-on-Form-10-K.PDF> 