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December 10, 2019

Respectfully, to Mayor Tom Schwedhelm  
and the Santa Rosa City Council

Re: Compliance with the federally-required NEPA initial study must take place and dangers to all life our area including pollinators, along with Ordinance issues, mandate further study by Santa Rosa prior to any 5G distribution.

Dear Mayor and Council –

I have been appearing before public governance boards for more than nine years in attempts to bridge the gap between what the science shows and the viewpoints all of us for a long time adopted about the hazards associated with cellular regulation. The first time I appeared in this regard was probably in support of the original San Francisco Cellular Telephone Ordinance in 2010.

During these intervening years, the core scientific realities have now come from increasingly credible sources, you are by now aware of course of the report of the National Toxicology Program of the U. S. National Institutes of Health concerning the results of the NTP's \$25 million, 30 month study of whether cellular radiation causes cancer cells, and in fact glioma cells are found to occur.

It is naturally the case that as I've been invited to make more presentations, much of the same material is repeated, hopefully, sharpened. Today's letter to you has many of the attributes of my presentation to the City of Napa earlier this month; those factors are chosen here because we in Marin and Sonoma are also concerned with agriculture.

Yet, when I think of speaking to you in Santa Rosa, the 'love one another' lines Youngbloods 60's song Get Together keeps coming to mind. Could we please, in Santa Rosa, all of us, acknowledge that we are each and all affected by the risks of high density communications microwave, and so we should work to get back to caring about each other, look carefully at the science, take this issue seriously, and stop 5G deployment

until at least the law is complied with, and also the health consequences, **and Santa Rosa's liability exposure** have been seriously taken into account. Care for the humans, care for the bees, we are all in this together.

Most of all, you, as individual members of this Council, are not at fault for the fact that you now find yourselves in a difficult position, because you relied on what you were told by industry, and now we have a GIGO problem, as best illustrated by one of the most important articles you can read on this subject, from The Nation magazine, in particular from the March 29, 2018 edition, please put this in your browser:

<https://www.thenation.com/article/how-big-wireless-made-us-think-that-cell-phones-are-safe-a-special-investigation/>

As interpreted by the District of Columbia Circuit on August 9<sup>th</sup>, requires that, affecting our whole nation, that the most preliminary NEPA report is required to be completed before the approval of applications for telecom antenna placement in the public right of way. Also, there is the legal point, as I currently understand it, that the proposed enabling Ordinance was not actually passed by your Council two years ago, so that we've all been without that legal rudder since then, an additional factor supporting that all 5G and 4G applications have to be re-submitted, re-examined and at the least the NEPA report completed before allowance of permits for these radiation-intrusive structures.

The goal of this letter is to sufficiently acquaint you with mainstream science findings which indicate possible harm to all DNA organisms in the Santa Rosa Valley, from people to grapes, from the proposed dense installation of what are being labeled as 5G small cell antennas.

In order to acquaint you with these data quickly, this piece is broken down into several sub-categories. The main thrust here is to provide hard data demonstrating that further study by the City of Santa Rosa is mandated by the proven nature of cellular microwave impact on living things. Provided below are issues which it is respectfully suggested make it best for all of us if this Council will please table the approval of any telecom antenna permit applications until, as speedily as possible, technical, scientific, and legal analysis can be provided to the members of this Council on these issues:

1. Whether dense antenna installation presents peculiar risks of harm to the vineyards and wineries in the Santa Rosa Valley as a whole, due to pollinator impairment.



2. Whether, in the opinion of your City Attorney, recent developments in federal and California case law broaden the alternatives to cities facing dense microwave deployment.
3. Whether, mainstream scientific data indicates that saturating Santa Rosa residents with intense 24/7 microwave will cause health problems for those residents, including: 2) Whether the increase in density of microwave carcinogens resultant from the proposed 5G rollout is a phenomena which through its cumulative constancy of exposure constitutes a reportable hazard within the context of California law pertaining to endangerment of minors.
4. Whether the City of Santa Rosa faces greater liability and litigation expense from the issuance of these permits than it does from any telecom lawsuit threats.
5. Whether the possible use of 3G and 4G frequencies in what is being sold as a 5G rollout has DNA rupture differentials in effect based upon frequencies.

This is provided to you electronically so that the people of the City of Santa Rosa and residents of the Santa Rosa Valley generally can access the data stated here. Due to intermittence in the effectiveness of the pasted in links supplied with this letter, the reader is encouraged to cut each link and plug it into your chosen browser.

1. Science findings regarding pollinator navigation show needed further study

There is a risk to all pollinators in the Santa Rosa Valley from the now proposed high-density telecom antenna permit applications. This discussion will be on bees.

Bees navigate by magnetic orientation. Please see the thorough discussion on this titled ***Honey bees navigate using magnetic abdomens:***

<https://physicsworld.com/a/honey-bees-navigate-using-magnetic-abdomens/>

See also from *Nature* a 2016 article titled ***Magnetic Sensing through the Abdomen of the Honey bee*** which can be found at:

<https://www.nature.com/articles/srep23657>

Clear and convincing evidence including from the first two able studies prove that the abdomens of honey bees have magnetite and that this provides directional and return guidance.

It is not claimed here that Hive Collapse Disorder is a single cause process or that microwave exposure is the sole cause. The harm from mites is recognized. The existence of solid studies showing bees perception of polarized light is a navigation source including in very low light conditions is also recognized.

Rather than making any overreaching pitch, it is suggested that the data are sufficient to indicate that study of the relationship between pollinator survival and microwave installation should be examined, not only by appropriately qualified persons with environmental scientific credentials, but also by the City Attorney in light of potential lawsuits against the City of Santa Rosa derivative from decreased yields experienced by affected vineyards.

Our windshields used to clog with insects, especially in low elevation roads, like out on 37, especially between 101 and Black Point, or on 121 before Arnold Drive or on highway 12 between Ford's Corner and the Santa Rosa line. We don't see that any more. A recent study showed more than 75 percent decline over 27 years in total flying insect biomass in the sample areas studied in Germany - see Hallmann CA, Sorg M, Jongejans E, Siepel H, Hofland N, et al. (2017).

All life is built of DNA, not just our rapacious human species. It is scientifically established that exposure to cellular mast radiation will cause tree withering proportional to exposure. Please see a careful a 26 page study report on the effects of radiofrequency radiation on trees around mobile phone base stations can be found through your search for the unusual title 'Bernartzky (1986), revisited'. Quoting briefly from the Abstract, after a discussion of methods; ***"The measurements of all trees revealed significant differences between the damaged side facing a phone mast and the opposite side, as well as differences between the exposed side of damaged trees and all other groups of trees on both sides."*** (emphasis added) These findings are consistent with the determination by Dr. Henry Lai of the University of Washington School of Medicine that **DNA strand fracture results from cellular signal exposure**. There is a particularly instructive article on Dr. Lai in Seattle magazine, as information exchange in a lawsuit turned up a memo from one telecom advocate to another about how to 'war game' against Dr. Lai.

Briefly, as thoroughly discussed in a ten page letter to Assembly Appropriations dated July 19, 2017 in opposition to CA SB 649 ( available at [www.greenswan.org](http://www.greenswan.org)) in 1983, a team at the University of Maryland found that establishing a 7.43 concentration of DNA to plain water resulted in a 24-fold increase in the Specific Absorption Rate of the resulting fluid, compared to the plain water used as a base, ***and that the mechanism was 'acoustic,' in physics language, not ionic***. This is consistent with the way a microwave oven works, which is that heat is the *result* of molecular agitation, *not the cause*. The industry-lap-dog FCC continues to push that the mechanism of causation is thermal despite the fact that our own federal government, after \$25 million dollars and the efforts of our best toxicology scientists proved that the cancer mechanism is non-thermal.



Since the swaths of more dense development in the Valley tend naturally to reside across the Valley on level land, all insects and birds which transit the more developed and antenna-dense areas will experience decrease in magnetite-based navigational accuracy.

In considering these issues it is helpful to comprehend the mass extent of industry practices in pruning publicly available information, in this regard see the article entitled How Big Wireless Made Us Think Cell Phones Are Safe, by Mark Hertsgaard and Mark Dowie in the March 29, 2018 edition of The Nation magazine:

<https://www.thenation.com/article/how-big-wireless-made-us-think-that-cell-phones-are-safe-a-special-investigation/>

People concerned with the preservation of the Santa Rosa wine culture and industry here should join together, on this Council and as friends, to insure that these issues be decently studied before permit approval. The heart of the Valley is at stake in more ways than one.

2. Recent developments in Federal and California case law broaden the alternatives to cities facing dense microwave deployment.

On Aug 9, 2019, the DC Circuit Court of Appeals ruled in Case 18-1129: the ruling means that The FCC/Wireless Industry must now complete a NEPA Environmental Assessment (EA) and/or Environmental Impact Statement (EIS) BEFORE any CPMRA application can be considered complete. This signals a broad and accomplished modification of applicable law, including as to presently pending permit applications. Under these circumstances it respectfully suggested that the City Attorney should be allowed to determine by research and opinion report whether any arguably applicable CPMRA shot clocks should now be considered tolled, perhaps with re-set proviso as an adjunct aspect.

On Oct 1, 2019, the DC Circuit Court of Appeals ruled in Case 18-1051: the ruling means the FCC willingly pulled their own teeth and no longer regulate the Internet (web pages, video/music streaming, online gaming and other information services).

Therefore, it is humbly and respectfully suggested that the City Attorney or other unbiased counsel determine whether it is true, as we believe, that whatever preemption was and remains, Big Wireless has NO PREEMPTION to install or operate personal wireless facilities that emit wireless "information services" transmissions in any municipality in the USA, including Santa Rosa. Therefore as to those increased services,

which can be delivered without radiation through fiber optic means, the decision should and does reside with local governance.

This also means that the Wireless Industry only has preemption to place, construct and modify personal wireless facilities for wirelessly transmitting "telecommunications services" (i.e. voice transmissions).

In the above regard, the proven absence of a significant gap in Verizon's voice transmission coverage in Santa Rosa is a very important factor in the Council's 11/5/19 decision. It is respectfully suggested that it is not necessary for the City of Santa Rosa to 'rush to signature' a Accommodation Agreement for these unnecessary CPMRA installations — because Santa Rosa residents can currently make calls on Verizon Wireless everywhere that Verizon is proposing to install a CPMRA.

The that the recent restrictions on the FCC grab should be taken seriously, taking into account that this is the DC Circuit, ruling on the FCC's power grabs, which Circuit sets the lighthouse for many other Courts. Thanks to Paul McGavin for his contributions to this area of this document.

3. Whether, mainstream scientific data indicates that saturating Santa Rosa residents with intense 24/7 microwave will cause health problems for those residents, including: 2) Whether the increase in density of microwave carcinogens resultant from the proposed 5G rollout is a phenomena which through cumulative constancy of exposure constitutes a reportable hazard within the context of California law pertaining to endangerment of minors.

It has been long established for about two decades from the work of Dr. Henry Lai of the University of Washington School of Medicine that cellular telephone wavelengths cause DNA fracture. That a generally prevailing concern about EMF radiation now exists is buttressed by, for one, the publication by Scientific American in October of an article by Dr. Joel Moscovitz of the University California Berkeley tells us of potential health consequences from 5G dispersal as currently contemplated by giant telecom. The national toxicology program of the United States government's National Institutes of Health issued its final report on November 2, 2018 following 2 ½ years

On May 27, 2016 the National Toxicology Program (hereafter NTP) of the U. S. National Institutes of Health (hereafter NIH) issued its first report on results of the NTP's \$25 million study of whether cellular non-ionizing radiation causes cancer. The NTP determined that cellular radiation causes an increased risk of cancer, including the thereby-forced creation of glioma cells, the root cells of glioblastoma, the deadly brain cancer. The study also showed that the radiation caused the formation of the cells which



cause acoustic neuroma in humans. On 2/27/16 when the NTP study results were made public, a thorough discussion of the findings appeared in a *Mother Jones* article titled; ***“Game-Changing” Study Links Cellphone Radiation to Cancer***, which you can easily find. Then followed nearly two years of further peer review until March 28<sup>th</sup> of 2018, when, at the end of a three day peer consortium on the issue in Research Triangle NC the NTP used the clarifying language that their \$25 million study showed ‘clear evidence’ that cellular radiation causes cancer. ***But that wasn’t the NTP’s final word on whether cellular microwave causes cancer.***

The final report of the National Toxicology Program on the NTP’s \$25 million study was issued on November 2, 2018. This final report confirmed the finding that microwave radiation from cellular sources is carcinogenic, and that the mechanism of harm is non-thermal. The entire industry-influenced ‘regulatory,’ standards used by the FCC are based on the assumption that the only possible mechanism of tissue damage is thermal. The best website for your obtainment of scientific findings is [www.ehtrust.org](http://www.ehtrust.org), for The Environmental Health Trust. At the EHT site, please see the letters to school districts from Dr. Martha Herbert, a Pediatric Neurologist at Massachusetts General Hospital and on the faculty of the Harvard Medical School, citing hundreds of studies. Hundreds of pages could easily be taken simply to list sources on this subject yet there are sufficient sources stated above to show the 5G cancer hazard to all Santa Rosa residents.

To state it briefly: There is a sufficient national professional scientific and medical consensus that microwave radiation, especially in near-field, is harmful, such that prudent administrative and legislative practices should include the completion of a review of the health consequences from increased multi-axial microwave saturation.

4. Whether the City of Santa Rosa faces greater liability and litigation expense from the issuance of these permits than it does from any telecom lawsuit threats.

The great thing about getting a written opinion letter from a lawyer is that they lawyer is thereafter stuck with it, right or wrong. For example, after the National Toxicology Program of the U. S. National Institutes of Health determines that cellular radiation causes cancer cell formation, where such an antenna generating such carcinogenic waves is permissively placed, with revenue, on a publicly owned utility pole, isn’t this therefore a Dangerous Condition of Public Property?

Because of what they were repeatedly told, and believed in good faith, few professional administrators have studied deeply in this field. Seldom to we find professional administrators who have spent more than a half hour giving serious consideration to the actual language of the Act. As advocates our experience with government advisory lawyers are very uneven. Some lawyers, whether or not agreeing on a core point, will evidence actual study. Others, appear to parrot simplistic interpretations of complex and science areas.

There are, for one example, legal issues concerning the extent to which application to situations of 'direct physical harm' is not consistent with language norms ubiquitous when that Bill was passed. The Act puts forth wattage limits, and preemption only applies to approved wattage levels, whereas it has been from time to time found, including by sophisticated meter reading in the field, that actual field antenna strength has been far greater than claimed

But, beyond that, would you, as responsible souls on this Council, want people who were damaged from radiation they had no way to avoid, to go without recompense on a technicality like that? There are sophisticated legal arguments on this, in my view Separation of Powers is at the crucible of it. But it is suggested that any experienced lawyer long engaged with governmental entities would agree with the following points, not involving rocket science:

- 1) The defendants in a lawsuit do not get to choose whether to be sued. That choice is made by plaintiffs' counsel.
- 2) Once the involved cellular antenna box is attached to the governmental utility pole with telecom as the tenant, the Doctrine of Fixtures from ordinary landlord tenant law applies and a melding takes place, and plaintiffs' counsel will allege, as is consistent with the law, that the melded unit as a whole is now Public Property.
- 3) The main CA Government Code section which is pled by experienced public entity lawyers is Dangerous Condition of Public Property, Government Code 835.
- 4) There is now overwhelming evidence of DNA and cellular damage from radio-frequency EMF as emitted by cellular phones and towers. Therefore, 5G's close proximity radiation source is 'dangerous' under Government Code 835.
- 5) Liability of the County of Santa Rosa and other regional and local governmental and regulated entities (here we go, PG&E again) will be alleged, and in legal logic and fact shown to exist on multiple other basis, including joint venture and with the damages resulting from the concurring actions of independent tortfeasors under the Summers v. Tice approach, see 33 C2d 80.
- 6) In California and elsewhere, 'joint and several liability' means that a 1% liability contributor has 100% of financial responsibility from a loss in the instance of the insolvency (or in this instance unavailability if the 1996 Act is sustained) , ***the result of the combination of the factors stated above is that all financial burdens from cellular injury are shifted to the taxpayers.***

Bottom line, if 5G is allowed in Santa Rosa in every case that arises from people claiming injury, whether that injury is in reality from cell phones or towers, industry will say that the 1996 Act protects them, but not the involved local entities. A far more detailed



explanation of this issue can be found in the above July 19, 2017 letter to Assembly Appropriations from our successful effort against CA SB 649. Importantly, 5G does not create a 'risk' of injury, like some essential medicines, because the participation of our bodies in microwave saturation is not a choice; 5G thus creates a constant hazard, not just a risk of injury. Allowing 5G in Santa Rosa is morally wrong for the above reasons.

4. Whether the possible use of 3G and 4G frequencies in what is being sold as a 5G rollout has DNA rupture differentials in effect based upon frequencies.

The wavelengths primarily used for telephonic communication at the 800 MHz range with spillover the 1900 MHz. As the numbers get bigger the waves get shorter and the tops of the waves closer together.

The frequencies with the lower numbers carry data more easily than the frequencies with the higher numbers.

As the numbers get higher it will take more power to pump any given cluster of data. This boils down to money, in terms of dollars spent per corresponding units of power.

We have sometimes encountered situations where persons in policy positions understood that they were approving 5G so-called 'small cell' antennas in greatly increased density (quarter mile intervals common), but where the language of the actual permit included a great variation in the frequencies which the applicant would be allowed to permit to issue from the antenna involved.

Maybe this is beneath the dignity I try for, but it occurred to me that if one were to think of this in golfing terms, the lower frequencies at the 800 MHz range especially (with spillover the 1900 MHz) are like a TaylorMade M6 Driver, it will hit the ball a long distance; the 5G is more like a putter.

As the frequency goes up the distance that ball can be driven diminishes the higher the frequency to lower the effective range because it's not a very good frequency it's not very efficient frequency.

It is my understanding that in Santa Rosa 800 MHz and 1900 MHz by spillover are the primary frequencies that your use for telephonic processes because those are very efficient and that means dollar efficient frequencies takes less energy and energy cost money; 800 MHz or the 1900 MHz venue have far greater penetration range than 5G which is the technical justification for this 5G dispersal. The effect of this is that if the 5G signal is sufficient to allow receipt in a room in your residence, then it is sufficient to bathe you in microwave 24/7.

It is beyond any letter to treat this fully. It is of independent value to have understand the basics of frequencies and penetration and range, and that's all which I've sought to get across here. In addition, if sometimes a telecom person might say or imply 'don't worry, it's just 4G,' the data show that isn't a good thing to couple unavoidable long reach signal with constantly penetrating high density.

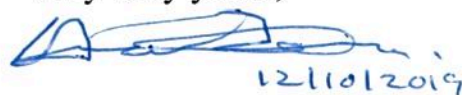
### Conclusion

This is a hastily assembled letter, taking assistance from many, and in several instances tailoring language from prior works involving Marin County or then-pending California legislation, and most of all I have included the same pollinator data as was recently submitted to Napa, because, like I said, and the lyrics of that 60's song refrained, we are all in this together.

The core point defended here is that there exist a substantial number of issues which should be vetted carefully before the City of Santa Rosa proceeds with further so-called 5G applications for permit. The term 'so-called,' is not stated out of meanness, but simply to clarify that many such applications have been found to contain immense elasticity wattage and type, with such issues left to the later unencumbered choice of the telecom provider, in a situation, which is the main point here, that this stuff needs to be studied, first.

In order to provide the broadest level of documented sources of scientific expertise a copy of a letter from Beatrice Golomb MD PhD, Professor of Medicine, University of California, San Diego, is attached to the electronic, but due to the pages taken (22) for the 360 scientific presentations, not the paper, variant of this letter. My assignment is to provide data sources, the data are clear that cellular microwave is carcinogenic as well as damaging to agriculture, and, here, to the historic Santa Rosa wine culture which has made this valley the destination it is today.

Very truly yours,

A handwritten signature in blue ink, appearing to read 'Harry V. Lehmann', with the date '12/10/2019' written below it.

Harry V. Lehmann





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 UC San Diego School of Medicine  
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August 18, 2017

To whom it may concern,

**I urge in the strongest terms that you vigorously oppose California SB 649.**

**If this bill passes, many people will suffer greatly, and needlessly, as a direct result.**

**This sounds like hyperbole. It is not.**

My research group at UC San Diego alone has received hundreds of communications from people who have developed serious health problems from electromagnetic radiation, following introduction of new technologies. Others with whom I am in communication, have independently received hundreds of similar reports. Most likely these are a tip of an iceberg of tens or perhaps hundreds of thousands of affected person. As each new technology leading to further exposure to electromagnetic radiation is introduced – and particularly introduced in a fashion that prevents vulnerable individuals from avoiding it – a new group become sensitized to health effects. This is particularly true for pulsed signals in the radiowave and microwave portion of the spectrum, the type for which the proposed bill SB 640 will bypass local control.

**Mechanisms by which health effects are exerted** have been shown to include oxidative stress (the type of injury against which antioxidants protect .see optional section below), damage to mitochondria (the energy producing parts of cells), damage to cell membranes<sup>1, 21</sup>, and via these mechanisms, an impaired “blood brain barrier”<sup>3-5</sup> (the blood brain barrier defends the brain against introduction of foreign substances and toxins; additionally, disruption can lead to brain edema<sup>6</sup>), constriction of blood vessels and impaired blood flow to the brain<sup>7</sup>, and triggering of autoimmune reactions<sup>8, 9</sup>. Following a large exposure, that depresses antioxidant defenses, magnifying vulnerability to future exposures, some persons no longer tolerate many other forms and intensities of electromagnetic radiation that previously caused them no problem, and that currently cause others no problem. But this group deserves – nay needs -- the right to be able to avoid these exposures.

**Affected individuals not only experience “symptoms”** that “merely” cause them distress and suffering, when they are exposed – symptoms like headaches<sup>10, 11</sup>, ringing ears<sup>10, 11</sup> and chest pain<sup>10</sup> from impaired blood flow, heart rhythm abnormalities<sup>10, 11</sup>, and inability to sleep<sup>10, 11</sup>. These symptoms arise from physiological injury. Moreover, **many experience significant health problems that can include seizures<sup>11</sup>, heart failure, hearing loss<sup>12-14</sup> and severe cognitive impairment<sup>11, 15</sup>.** The mechanisms involved are those also involved in development and progression of neurodegenerative conditions including Alzheimer’s disease<sup>16</sup>.



**Fully half who were employed when their problems developed lost their job because of the problem**, among participants of a survey we conducted. They reported that their condition had cost them up to 2 million dollars to date. Many had lost their homes. A number became homeless, and have swelled the ranks of so-called “EMF refugees”<sup>17-19</sup>. Among those affected, many were previously high functioning individuals – engineers, doctors, lawyers. The best and the brightest are among those whose lives – and ability to contribute to society – will be destroyed. High profile individuals with acknowledged electrohypersensitivity include, for instance, Gro Harlem Brundtland – the former 3-time Prime Minister of Norway and former Director General of the World Health Organization<sup>20</sup>; Matti Niemela, former Nokia Technology chief<sup>21</sup>; as well as the wife of Frank Clegg<sup>22</sup>, who formerly headed Microsoft Canada and is current head of Canadians for Safe Technology<sup>23</sup>.

**Each new roll-out of electromagnetic technology for which exposure is obligatory, swells the ranks of those who develop problems with electromagnetic fields (EMF).** – particularly following a significant exposure to pulsed radiowave-microwave radiation, and particularly when people have no ability to avoid it.

**Many state that they didn’t give credence to the problem** (if they had heard of it at all) **until they themselves fell prey to it.**

**This is not a psychologically driven condition.** Multiple objective physiological changes reflecting mechanisms of injury have been shown in persons with this condition<sup>24, 25</sup>.

**The role for oxidative stress, that has been shown in innumerable studies (below), is affirmed by evidence of a link of this condition to genetic variants in antioxidant defenses,** that are less avid in defending against oxidative stress<sup>307</sup>. People cannot manipulate their genes, to produce such an outcome by suggestibility.

**An analysis by a University of Washington researcher showed that most studies funded by industry reported failure to show physiological effects. However, most studies without such industry bias affirmed effects.** This is redolent of findings shown in medicine<sup>26</sup>, regarding which the former editor in chief of the BMJ (the British Medical Journal), Richard Smith, noted, based on findings of a study, “This {result} suggests that, far from conflict of interest being unimportant in the objective and pure world of science where method and the quality of data is everything, it is the main factor determining the result of studies.”<sup>27</sup>. So where articles deny injury from nonionizing radiowave-microwave radiation, there is commonly a stake aligned with financial benefit from such denial.

**Those who are affected are in desperate need of protection by our elected officials.** They need creation of safe spaces and housing, and roadways to allow travel, not removal of any prospect of one; protection of local rights to make decisions - **not removal of any recourse or ability to avoid what injures them.** They are far more strongly in need of protections than a great many protected classes – their problems arose due to actions of others, against which they were given no control – *and can be reversed*, in most cases, if the assault on them is rolled back. Through no fault of their own, and in some cases against their will (e.g. before opt out was permitted with smart meters), they were subjected to an





exposure that has altered their lives as they knew them, and forced them – needlessly - to the margins of society.

**Let our focus be on safer, wired and well shielded technology – not more wireless.**

**This legislation, if passed, and the resulting unrestricted roll-out of this technology, will predictably and directly injure and disable a new group,** and add depth of suffering to those already affected.

**In other spheres we abridge freedoms to protect the vulnerable few.** We require that every schoolchild be vaccinated, supposedly to protect the vulnerable few who may not respond effectively to a vaccine. The need to protect the vulnerable group is deemed to be so great that it justifies the decision to abridge individual rights.

**In contrast, this bill seeks to abridge individual freedoms, and local rights, in the service of harming a vulnerable group, and creating a new one.**

(The common factor appears to be that in both cases, the direction is aligned with a powerful industry that influences political decisions.)

Luckily, no abridgment of individual rights and freedoms is required to protect, here.

**If any group can opt out (such as, I understand, firefighters\*)<sup>28</sup>; then every group deserves that equal right.** Others should not be second class citizens, subject to fewer protections.

It would go far to helping this cause if anyone complicit in promoting or passing the legislation (and then after that, *their* families) were required to be the first subjected, for a substantial test period, to the *greatest* amount of exposure that anyone *else* (and their families) may be subjected to, when new policies of this type are rolled out. It will still not do them equal damage; because they may not represent the vulnerabilities that others will have; but such a policy might help them to think twice. *That* is a bill I would strongly endorse.

**Most who are now affected – were not, until they were. This may become you – or your child or grandchild.** Moreover, if you have a child, or a grandchild, his sperm, or her eggs (all of which she will already have by the time she is a fetus in utero), will be affected by the oxidative stress damage created by the electromagnetic radiation, in a fashion that may affect your future generations irreparably.

It was noted above that, among survey completers, fully half of those who were employed at the time they developed electrosensitivity, lost employment *due to* this problem. (This may understate the scope of the tragedy, since this most-affected group may be least likely to be able to respond to an online survey.) **Many who previously had no problem navigating in the world are now restricted from access to basic services** like hospital care, post offices and libraries because of these problems. With each new introduction of technology that exposes many to yet a new nondiscretionary source of electromagnetic radiation, particularly (but not exclusively) that which emits pulsed radiation in the radiowave-microwave part of the spectrum, a new group of people are affected; and the suffering of those who are already affected increases greatly.



Please, defend the public and our future. Protect the rights of the individual and the locality, against a form of incursion that will lead to serious harm to some – and set a terrible precedent. **Vote no on California SB 649**, and urge that everyone else do the same.

Sincerely,

Beatrice Alexandra Golomb, MD, PhD  
Professor of Medicine  
UC San Diego School of Medicine

\*Comment on the fire fighter exemption: "The legislature granted an exemption from SB 649 to the firefighters who requested it for health reasons. Throughout California firefighters have long complained of often disabling symptoms from cell towers on their stations. Cities frequently rent out space on fire stations to add to city revenue. ...Symptoms experienced by the firefighters have included neurological impairment including severe headache, confusion, inability to focus, lethargy, inability to sleep, and inability to wake up for 911 emergency calls. Firefighters have reported getting lost on 911 calls in the same community they grew up in, and one veteran medic forgot where he was in the midst of basic CPR on a cardiac victim and couldn't recall how to start the procedure over again...Prior to the installation of the tower on his station, this medic had not made a single mistake in 20 years. A pilot study (2004) of California firefighters showed brain abnormalities, cognitive impairment, delayed reaction time, and lack of impulse control in all 6 firefighters tested (<https://ecfsapi.fcc.gov/file/7022117660.pdf>). This study led to the overwhelming passage of Resolution 15 by the International Association of Firefighters in Boston in August 2004. Res. 15 called for further study and was amended to impose a moratorium on the placement of cell towers on fire stations throughout the US and Canada."<sup>15 28</sup> Clearly, others who experience similar problems also deserve protections.

#### Optional – More on the Science

**There is a robust literature showing that electromagnetic radiation, including in nonionizing frequencies, and at levels<sup>29,30</sup> below those that are cause thermal effects (heating) – causes physiological effects, injury, and cell death –not only in humans but many animals and plants<sup>3, 7, 31-49</sup>. Unsurprisingly, industry has sought – against the tide of evidence to the contrary - to maintain that radiation must be ionizing or heating to cause injury.**

**Scores or hundreds of studies show that radiation, including specifically radiowave-microwave spectrum radiation, and including low-level exposure, can impair antioxidant defenses, increase "oxidative stress" (free radical injury) and damage mitochondria, the energy producing parts of cells<sup>1, 2, 34, 50-6930, 70-104105-13646, 137-171</sup>. These effects occur with ionizing and nonionizing radiation, at thermal and subthermal levels. (Indeed, much or most of the damage by ionizing radiation, and radiation above the thermal limit, occurs by mechanisms also documented to occur without ionization, and below the thermal limit.) These**





mechanisms cohere with the mechanisms documented to play a role in symptoms and health conditions that are reported in those who are electrosensitive – extending to seizures<sup>172-176</sup>, heart failure<sup>177-184</sup> and cognitive decline<sup>5, 32, 57, 108, 185-195</sup>.

**These mechanisms have known involvement in induction of brain cancer, metabolic diseases like obesity and diabetes, autism, autoimmune disease, and neurodegenerative conditions,** conditions that have exploded. In each case these have been linked, or presumptively linked, in some studies to electromagnetic radiation<sup>8, 9, 16, 34, 196-219</sup>.

**Such radiation also has effects on sperm**<sup>33, 100, 220-228</sup>; and the DNA of sperm<sup>229</sup> (consistent with recent news reports of marked recent declines in sperm counts and function)..

**Such radiation also has toxic effects in pregnancy**<sup>230</sup>, to the fetus and subsequent offspring<sup>231-235</sup> including at low levels<sup>236</sup>, and is tied to developmental problems in later life, including attention deficit and hyperactivity<sup>31, 235-241</sup>. It is critical to defend pregnant women (and eggs of girls who may at a later time become pregnant) from exposures with such toxicity.

**Electromagnetic radiation across much or most of the spectrum (not excluding visible light) has been shown to depress levels of melatonin**<sup>40, 72, 242-252</sup>, which is best known for its role in sleep (and indeed, impaired sleep is the most consistent symptom in affected individuals<sup>10, 11</sup>).

**Melatonin is in fact a critical antioxidant that defends the body against harm from many toxic exposures**<sup>253-266</sup> including electromagnetic radiation itself<sup>61, 66, 67, 82, 101, 107, 118, 121, 138, 144, 151, 204, 249, 267-284</sup> - **reducing the oxidative stress** that is implicated in cancer, metabolic diseases like obesity and diabetes, autism, autoimmune disease, bipolar disorder and neurodegenerative conditions, and that also plays a role in heart attack and stroke<sup>9, 285-329, 330-343</sup>.

**Radiation, and specifically radiation in the radiowave-microwave portion of the spectrum can also depress levels of other critical antioxidant systems** that also defend the body against chemical, radiation, and other sources of injury. These other antioxidant systems include the glutathione system, superoxide dismutase and catalase<sup>81, 102, 115, 116, 233, 344-358</sup> - which are also involved in defending against health problems.

**This suggests that depression of antioxidant defenses due to electromagnetic radiation may magnify risk of chemically induced health effects (and depression of antioxidant systems due to some chemicals may amplify risk of harm from electromagnetic radiation).** Indeed just such effects have been reported<sup>359, 360</sup>.

heart failure<sup>177-184</sup> and cognitive decline<sup>5, 32, 57, 108, 185-195</sup>

presumptively linked, in some studies to electromagnetic radiation<sup>8, 9, 16, 34, 196-219</sup>

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- reducing the oxidative stress that is implicated in cancer, metabolic diseases like obesity and diabetes

include the glutathione system, superoxide dismutase and catalase.<sup>81, 102, 115, 116, 233, 344-358</sup>

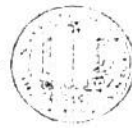
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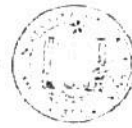


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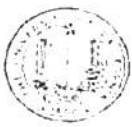
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