

Governor Jerry Brown  
c/o State Capitol Suit 1173  
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September 22, 2017

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Also submitted via the internet email form: <https://govapps.gov.ca.gov/gov39mail/>

**RE: SB-649 Wireless telecommunications facilities**

Dear Governor Brown:

I am writing to ask for your intervention on **SB-649 Wireless telecommunications facilities** be placed on hold for a minimum of six months until the full impact of the technology can be understood.

As the former President of Microsoft Canada, I have witnessed the incredible benefits technology can provide. I have also seen the potential harm if technology is not implemented correctly. After studying the issue for the last four years and personally meeting with over a dozen international experts, I have come to the conclusion that our current use of wireless technology, specifically use of devices such as cell phones, could be much safer.

I also support the potential benefits with the next iteration of wireless technology, 5G. However, neither my industry, nor any Federal agency in Canada or the United States can say unequivocally that this technology is safe. There are too many unknowns regarding this technology and far too little peer reviewed, published material available to proceed at this time.

I make the request for a moratorium based on the following reasons:

1. **Many radiation emitting antennae within meters of homes and schools** - Intensive infrastructure will be required because 5G technology is effective only over short distances, and is poorly transmitted through solids. This requires unobstructed paths between transmitters and receivers. Thus, many antennae are necessary, preferably line-of-sight. As a result, full-scale implementation could result in "small" yet powerful antennae every 3 to 10 houses in residential areas.<sup>1</sup>
2. **Concern regarding health effects** - There is strong scientific evidence that the radiation we are now being exposed to from 2G, 3G and 4G has serious adverse effects on human health.<sup>2</sup> The new spectrum proposed to be licensed has undergone very little research on human health effects. No Federal Agency, including Health Canada and the FCC can point to any peer-reviewed evidence-based science that shows 5G technology is safe.<sup>3</sup> What we do know is of concern.

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<sup>1</sup> <https://ehtrust.org/key-issues/cell-phoneswireless/5g-networks-iot-scientific-overview-human-health-risks/>

<sup>2</sup> [http://c4st.org/wp-content/uploads/2017/04/original-references\\_of\\_over\\_200\\_scientific\\_studies\\_showing\\_potential\\_harm\\_at\\_levels\\_below\\_safety\\_code\\_6.pdf](http://c4st.org/wp-content/uploads/2017/04/original-references_of_over_200_scientific_studies_showing_potential_harm_at_levels_below_safety_code_6.pdf)

<sup>3</sup> No analyses or evaluation of biological effects were presented in Safety Code 6 (2015), the Safety Code 6 (2015) Rationale, nor in the authorities that are referred to in these reports.

3. **Cancer concerns** - Radiation from wireless devices, including the 5G frequencies to be licensed, has been designated a Class 2B, *possible* human carcinogen by the World Health Organization.<sup>4</sup> Lead is in the same category.
4. **Skin will be most affected** - 5G radiation is chiefly absorbed by the skin, the largest organ of the body.<sup>5,6,7,8</sup> The importance of an informed, precautionary approach is magnified due to interactions between wireless radiation and chemical toxicants<sup>9</sup>. As one example, some toxicants can concentrate in the skin, and interactions with wireless radiation may be one reason for increasing incidence of skin cancers on non-sun-exposed skin. 5G may magnify and accelerate this issue.
5. **Adverse effects demonstrated in military applications** - We simply do not know the full effects of the 5G pulsed frequencies. As outlined by the Environmental Health Trust, we do know for frequencies just above 5G that "...the U.S., Russian and Chinese [defense agencies](#) have been developing weapons that rely on the capability of this electromagnetic frequency range to induce unpleasant burning sensations on the skin as a form of crowd control. Millimeter waves are utilized by the U.S. Army in crowd dispersal guns called [Active Denial Systems](#)<sup>10</sup>. This is exploiting the fact that sweat ducts may act as antennae for sub-millimetre wavelength radiation that can cause point heating and pain.<sup>11</sup>
6. That these frequencies (millimetre wavelengths) have biological effects has been shown by trials of short term exposures for therapeutic treatments for neurological conditions.<sup>12</sup> What we don't know is what the health effects will be when people are exposed 24/7 from outside sources e.g. microcells on utility poles, as well as from inside sources from 5G emitting devices e.g. from household appliances.
7. **International appeals for better protection**
  - Over 224 scientists from 41 nations, who have published peer-reviewed papers on the biological or health effects of non-ionizing radiation<sup>13</sup>, made the following statement on May 11, 2015: "*These findings justify our appeal to the United Nations (UN) and, all member States in the world, to encourage the World Health Organization (WHO) to exert strong leadership in fostering the development of more protective EMF guidelines, encouraging precautionary measures, and educating the public about health risks, particularly risk to children and fetal development. By not taking action, the WHO is failing to fulfill its role as the preeminent international public health agency.*"<sup>14</sup>
  - On Sept. 13, 2017, in Örebro, Sweden, over 180 scientists and doctors from 35 countries sent a declaration to officials of the European Commission demanding a moratorium on the increase of cell

<sup>4</sup> WHO/IARC Press Release: [http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208\\_E.pdf](http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf)

<sup>5</sup> <https://ehtrust.org/wp-content/uploads/Yuri-Feldman-and-Paul-Ben-Ishai-Abstract.pdf>

<sup>6</sup> [https://www.researchgate.net/publication/51394628\\_Human\\_Skin\\_as\\_Arrays\\_of\\_Helical\\_Antennas\\_in\\_the\\_Millimeter\\_and\\_Submillimeter\\_Wave\\_Range](https://www.researchgate.net/publication/51394628_Human_Skin_as_Arrays_of_Helical_Antennas_in_the_Millimeter_and_Submillimeter_Wave_Range)

<sup>7</sup> <http://aph.huji.ac.il/people/feldman/research.htm#Human%20Skin%20as%20Arrays%20of%20Helical%20Antennas%20in%20the%20Millimeter%20and%20Submillimeter%20Wave%20Range>

<sup>8</sup> <https://www.ncbi.nlm.nih.gov/pubmed/21297244>

<sup>9</sup> Kostoff, R. N., & Lau, C. G. Y. (2013). Combined biological and health effects of electromagnetic fields and other agents in the published literature. *Technological Forecasting & Social Change*, 80(7), 1331–1349 .

[https://www.researchgate.net/publication/273830948\\_Combined\\_biological\\_and\\_health\\_effects\\_of\\_electromagnetic\\_fields\\_and\\_other\\_agents\\_in\\_the\\_published\\_literature](https://www.researchgate.net/publication/273830948_Combined_biological_and_health_effects_of_electromagnetic_fields_and_other_agents_in_the_published_literature)

<sup>10</sup> 5G FREQUENCIES ARE USED IN WEAPONS

<https://ehtrust.org/key-issues/cell-phoneswireless/5g-networks-iot-scientific-overview-human-health-risks/>

<sup>11</sup> [https://www.researchgate.net/publication/51394628\\_Human\\_Skin\\_as\\_Arrays\\_of\\_Helical\\_Antennas\\_in\\_the\\_Millimeter\\_and\\_Submillimeter\\_Wave\\_Range](https://www.researchgate.net/publication/51394628_Human_Skin_as_Arrays_of_Helical_Antennas_in_the_Millimeter_and_Submillimeter_Wave_Range)

<sup>12</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1475937/>

<sup>13</sup> part of the EMF [electromagnetic field] spectrum that includes extremely low frequency fields (ELF) used for electricity, or radiofrequency radiation (RFR) used for wireless communications

<sup>14</sup> As of March 22<sup>nd</sup>, 2017 the appeal had 225 signatures from 41 nations.

antennas for planned 5G expansion. Concerns over health effects from higher radiation exposure include potential neurological impacts, infertility, and cancer.<sup>15</sup>

8. The impact to local cities, towns and municipalities is not understood. It is my understanding that a significant number of town and cities in California oppose SB-649.
9. **We should learn from past public health disasters.** In North America, our track record of protecting individuals in a timely manner is not exemplary, when you consider the ongoing delays regarding asbestos, cigarette smoking and bisphenol-A (BPA), as well as thalidomide and urea formaldehyde insulation in the past. The growing scientific evidence indicates that exposure from wireless device emissions are becoming a public health catastrophe of comparable magnitude.
10. **More uncertainty** - Dr. Cindy Russell's article "*A 5G Wireless Future: Will It Give Us a Smart Nation or Contribute to An Unhealthy One?*" asks highly relevant questions challenging the North American industries' plans to roll out 5G technology.<sup>16</sup>
11. **An appeal on behalf of future victims** – Dr. Beatrice Alexandra Golomb, MD, PhD, Professor of Medicine, University of California San Diego School of Medicine writes a very compelling argument on why individuals who will be adversely impacted by the 5G rollout need to be protected. Her argument is supported with references to 360 published articles and papers.<sup>17</sup>

Governor, I ask that you take the prudent route regarding the public health of Californians (and other citizens in North America) and place a moratorium on all 5G technology to which the public will be exposed until the science is fully examined.

I will be calling your office in the next few days to request a meeting to further explain my concerns.

Sincerely,



Frank Clegg  
CEO,  
Canadians for Safe Technology (C4ST)  
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<sup>15</sup> <https://drive.google.com/file/d/0B14R6QNkmaXueIFrNWRQcThNV0U/view>

<sup>16</sup> <http://www.sccma-mcms.org/Portals/19/assets/docs/17ZZ-PDF.pdf?ver=2017-05-10-133815-897>

<sup>17</sup> <https://drive.google.com/file/d/0B14R6QNkmaXubmZUbWl1aERpX1E/view>